

Dental

Abstracts

a selection of world dental literature

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A selection of world dental literature

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1. *To present a selection of pertinent literature representative of all points of view within the profession;*
2. *To provide, by a few hours' reading, a survey of the significant advances being made by dentistry throughout the world, as reflected in current dental literature; and*
3. *To supply enough data in each abstract and digest that the reader may determine whether he wishes to refer to the original article for more complete information.*

The abstracts are grouped in broad classifications. The specialist will learn from this periodical of work done in other fields as well as in his own. The general practitioner will be able to keep abreast of current knowledge in the various specialties. Unless otherwise indicated, the original article is in the language implied by the title of the magazine in which the article appeared.

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Gold foil is superior to silicate cement and porcelain inlays for restoring the proximal surfaces of maxillary anterior teeth. Detailed instructions are given for cavity preparation, placing the gold foil, and finishing the invisible Class III gold foil restoration.

Invisible Class III gold foil restorations

*Alexander Jeffery, * D.D.S., Seattle*

The cosmetic appearance of fillings placed in the anterior teeth is usually of greater importance to most patients than the permanency of the restorations. This requirement challenges the dentist who desires to provide his patients with the most permanent, as well as the most esthetic, restoration.

Gold foil unquestionably is one of the finest filling materials. Because gold foil calks the cavity, it should not be compared to the gold or porcelain inlay which is sealed in place with cement.

The distal surface of any cupid is ideal for the placement of a gold foil filling because in most instances the completed filling is not visible from the labial aspect. Often gold foil restorations can be inserted in the proximal surfaces of maxillary teeth so as to be invisible to the lay observer. The position of the proximal tooth, as well as the location and size of the cavity, may be a determining factor in governing the choice of filling material to be used. All too frequently the outline of the Class III cavity is made to conform to instrumentation for the sake of easy access and a definite operative procedure, instead of making instruments and cavity outline conform to the varying operative technics which the dentist and his patient may desire for esthetic reasons.

An invisible Class III gold foil restoration not only maintains appearance, but it also preserves tooth structure, and the operative procedure is equally as facile as the so-called standard Class III technic. It is better to preserve the appearance and take a slight chance on recurrence of caries than it is to make a filling which is displeasing to patients and to those who come in contact with them. G. V. Black stated:¹

Decay seldom begins on the angles of any of the teeth and especially is this rare in the angles of the incisors and cuspids. When cavities in these teeth are so cut that the margins approach the angles sufficiently to free them well

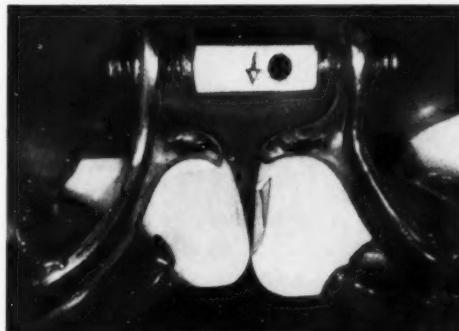
from near contact with the approximating teeth, extension for prevention is satisfied. An approach to the angle on that part of the surface rounding up to it is what is called for. . . . In the preparation of a cavity in an incisor it should never be cut over onto the labial surface for the purpose of extension for prevention. . . . In these teeth the necessities for extension for prevention relate almost exclusively to broadening the cavity to the labio-gingival and the linguo-gingival of the proximal surfaces . . .

Cavity Preparation

The cavity preparation for proximal gold foil restorations in maxillary incisors and cuspids may be approached from the labial, the incisobulb, the lingual or the incisolingual aspect of the tooth. This paper describes the cavity preparation for and the insertion of a gold foil filling on the distal surface of a maxillary left central incisor.

After a local anesthetic has been administered, the rubber dam is adjusted to include a sufficient number of teeth so that a separator can be secured firmly to the teeth with modeling compound. Several separators of similar size should be available. The slightly worn ones will be more

Figure 1 Separator adaptation and prepared distal cavity in maxillary left central incisor. Viewed from distolingual aspect



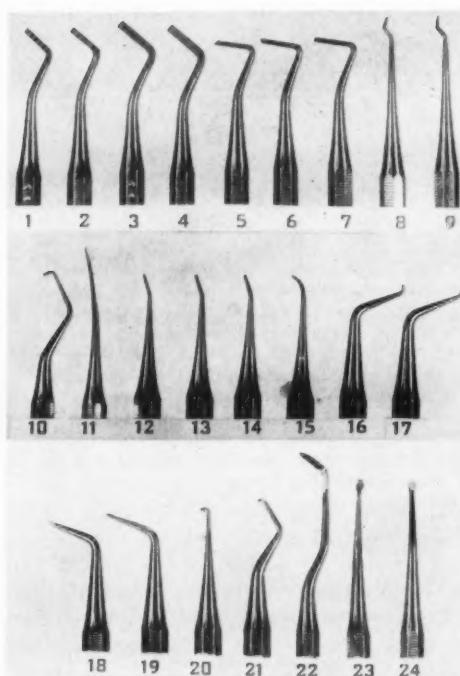
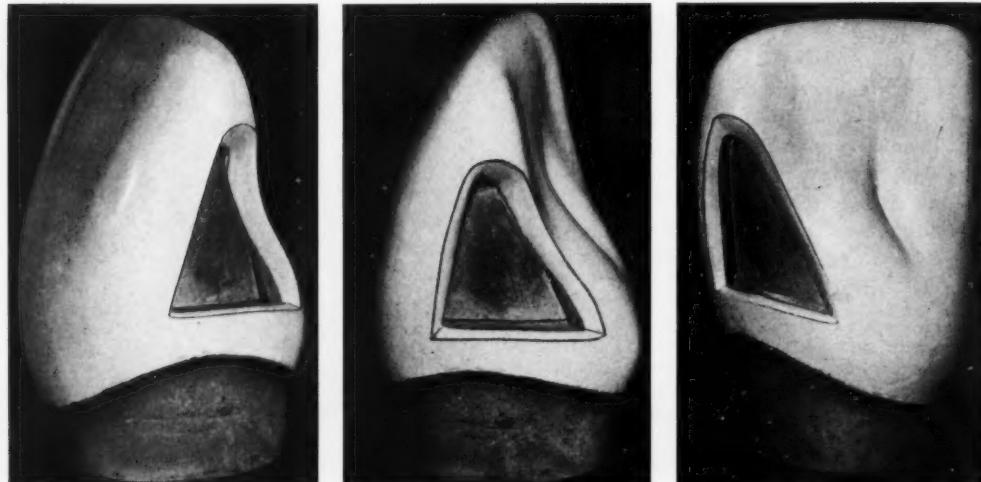


Figure 2 Instruments used in preparing an invisible Class III gold foil restoration

easily adjusted to the teeth. The claws of the separators should engage the proximal teeth at the labiogingival and linguogingival angles. If

Figure 3 Plaster model showing three views of a prepared cavity in the distal surface of the maxillary right central incisor



necessary the claws can be reduced by placing a cylindrical stone between the lingual and the labial claws and grinding them so that they will not extend into the interproximal space and interfere with the cavity preparation and finishing of the filling. The lingual bow of one side of the separator should be depressed and tipped out of line so that it will not interfere with vision and instrumentation (Fig. 1).

Almost the entire operation is accomplished with ease by working from behind the chair using indirect vision in a mirror. The cavity preparation is started by breaking down the weakened enamel over the carious region with a small bevel-edged hatchet type cutting instrument no. 2 (10-6-14-L) (Fig. 2). A small carbide inverted cone bur is used to cut the enamel at the linguogingival angle and to open the cavity gingivally and lingually. A medium size bevel-edged enamel hatchet no. 4 (15-8-14-L) is used to form an acute linguogingival angle well out toward the cingulum, and the beveled cutting side of the instrument is used to form the lingual wall. The gingival wall is extended as far gingivally as possible and toward the labiogingival angle of the tooth with a small inverted cone bur. It is important to extend a Class III cavity gingivally so that when the interproximal tissue recedes in future years the gingival margin of the filling will still be covered with tissue and the tooth protected from recurrence of caries in this region.

A convenience pit is then formed in the labio-axiogingival angle with a very small inverted cone

bur. This bur may be reduced in size by running the side of the bur on a smooth stone. A contra-angle instrument no. 5 (9-7-23-16-L) is used to form the gingival and labial walls at a slightly acute angle to the axial wall. The linguoaxiogingival angle is formed with a bayonet type angle former no. 9 (6-80-2-2-L). The incisal retention region is formed with a contra-angle hatchet no. 10 (3-2-32). The gingival enamel is planed with instrument no. 7 (9-7-23-16). The labial, labiogingival and labioincisal enamel are planed with instrument no. 6 (9-7-23-16-R). All enamel margins are very slightly beveled with a very thin contra-bevel chisel no. 11 (10-15-3).

Three views of a model of a maxillary right central incisor in which a distal cavity has been prepared are shown in Figure 3. The cutting instruments used in preparing a similar cavity in a tooth are no. 1 (10-6-14-R); no. 3 (15-8-14-R); no. 6 (9-7-23-16-R); no. 8 (6-80-2-2-R); no. 10 (3-2-32); no. 7 (9-7-23-16); no. 5 (9-7-23-16-L) and no. 11 (10-15-3), respectively.

Placing the Gold Foil

The gold foil filling is started by condensing one or two pellets of foil (size 128) in the labiogingival convenience pit with a small mono-angle condenser no. 12. This will hold the gold securely for attachment of additional gold. It is not necessary or advisable to use a so-called holding instrument because the gold is anchored sufficiently and the instrument will interfere with efficient operating.

A pellet of gold (size 64) is placed in the labiogingival angle and attached to the previously placed gold in the convenience pit. A portion is allowed to extend over the margin. Another pellet of gold is placed over this first pellet and allowed to extend over the labiogingival margin. The gold is then placed across the gingival wall with a slightly larger condenser no. 13 and into the linguogingival angle with a bayonet type condenser no. 16. The gold extending over the margin is condensed with a no. 15 foot condenser.

The gold is then placed against the labial wall and over the enamel margin with a no. 14 mono-angle condenser, which has a condensing surface at right angles to the shaft of the instrument. The



Figure 4 Prepared cavity in distal surface of maxillary left central incisor. Viewed from lingual aspect

bulk of the gold is condensed toward the gingival margin with the mono-angle condenser no. 13. The gold is condensed into the linguoaxial line angle and against the lingual wall with the bayonet condensers no. 16, 17 and 18. The gold is placed in the incisal retention area with hand condensers no. 20 or 21, and condensed with instruments no. 16, 17 and 18. Gold is then placed from the incisal margin toward the gingival margin over the labial margin and attached to the previously placed gold from the lingual aspect with instrument no. 14 and from the incisal aspect with instrument no. 15. The gold is condensed against the enamel by being wedged against the proximal tooth. The gold is then condensed against the incisal enamel with condenser no. 18, and over the linguogingival margins with condenser no. 19.

Finishing the Restoration

The finishing is accomplished easily and quickly. A gold knife no. 22 is used as a swage in the proximal region and around the contact point from the lingual aspect. A push knife may be used as a swage against the gold over the labial and incisal margins. A foot condenser is used with light mallet blows to drive off the excess gold from the gingival margin. A gold knife and files no. 23 and 24 should be used to remove the excess gold and contour the proximal surfaces. The excess gold on the lingual surface is reduced with fine stones, finishing burs and polished with disks.

The separation between the teeth is increased very slightly, and the labial margin is finished

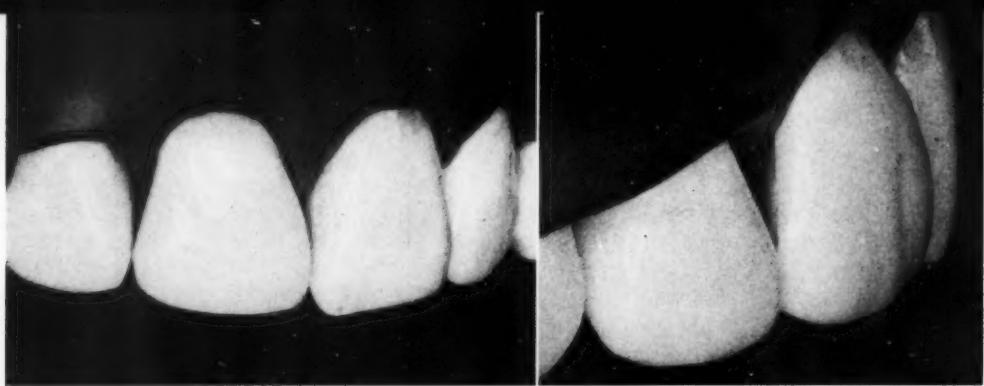


Figure 5 Left: Labial view of gold foil restoration with rubber dam retracting interproximal gingival tissues. Right: Distogingival view of the same gold foil restoration

with a burnishing instrument and extra fine cuttle disks. The incisal margin is rounded to form with large extra fine cuttle disks. A thin piece of matrix steel or a very fine ribbon saw is passed through the contact region. A thicker piece of matrix steel or a thinned Gordon-White saw is passed through this region to swage and harden the gold at the contact point. A fine, thin gold knife is used to contour the lingual and gingival part of the contact area. One or two extra narrow strips are used to polish the proximal region and contact point. An instrument may be pressed against the strip to polish any irregularities along the gingival margin.

The separator is removed carefully and the firmness of contact with the proximal tooth tested with dental floss. An abrasive strip should never be passed through the contact area after the separator has been removed, for it cannot help but flatten or make the gold concave where there should be a contact point. If it is necessary to reduce the contact point, a slightly worn, extra fine, narrow strip should be threaded through the interproximal area and worked toward the contact point. The teeth are wedged apart momentarily at the incisal margins with an orangewood stick and the contact point is polished. Figure 4 shows the lingual view of a prepared cavity in the distal surface of the maxillary left central incisor and a gold foil restoration on the distal surface of the right central incisor.

The success obtained with this type of restoration during the last 15 years has demonstrated the superiority of gold foil over silicate cement and porcelain inlays for restoring the proximal surfaces of maxillary anterior teeth. The patient usually is exceedingly pleased when he has difficulty in seeing the filling even with the aid of a

magnifying mirror. The comment of the average patient is: "Where is it, I can't see it, isn't that wonderful?" Figure 5 illustrates a gold foil restoration on the distal surface of a maxillary right central incisor.

Advantages of Gold Foil

The restoration described insures the tooth from decay. Caries cannot recur at the gingival margin for a long period because the filling has been carried well under the free margin of the gingiva. It will not recur on the labial margin if the gold has been condensed properly against and over that margin. Caries could recur near the labiogingival margin if the patient had a high intake of refined carbohydrates and poor mouth hygiene habits. If caries does recur in this region, the teeth can be separated slightly and a very small inverted cone bur used to cut the smallest amount of tooth structure, and the cavity filled with one or two pellets of gold (size 128), or if this is objectionable, a silicate cement filling can be inserted.

This type of restoration maintains the irreproducible beauty of the human tooth with what is conceded generally to be the most permanent filling material. It reduces the percentage of tragic losses of the incisal angle, because it retains the incisal tooth structure which affords support to the incisal angle. It is a pleasure to render this type of service to those who appreciate fine operative dentistry and it is both remunerative and satisfying to the operator.

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Reprinted from The Journal of the American Dental Association 54:1 Jan. 1957.

1. Black, G. V. Operative dentistry, ed. 2. Chicago, Medical-Dental Publishing Co., 1914, p. 214.

**Treatment of pulpitis
with triamcinolone**

H. Triadan and A. Schroeder.

Schweiz. Mschr. Zahnhk. 70:724-731 Aug. 1960

Ninety patients with clinical symptoms indicating the presence of pulpitis (ranging from light to severe) were treated with triamcinolone (9alpha-fluoro-16alpha-hydroxyprednisolone) at the Dental Institute of the University of Bern, Switzerland. The drug was applied immediately after radical removal of all carious matter from the cavities, regardless of whether pulp exposure had taken place. Triamcinolone was used in the form of a paste, and was administered topically with cotton pellets. In the trial investigation, six failures were observed.

In a second experiment, 64 patients in whom severe inflammation of the pulp (resulting from bacterial activity or from other causes) had been determined previously, were treated by topical application of a paste. This time, however, the paste contained triamcinolone, chloramphenicol and lidocaine (Xylocaine). A dressing with this paste was left in the completely prepared cavity for seven days. Thereafter, the cavity was filled temporarily with a paste containing zinc oxide, clove oil, triamcinolone and chloramphenicol. The temporary filling was left in position for another seven days. After this period, the permanent filling was inserted routinely. There was not a single failure.

The triamcinolone treatment was successful in spite of the fact that in this study only patients with extreme, violent pain had been included. In the great majority of these patients, pulp exposure had taken place prior to or during cavity preparation.

After application of the dressing the subjective symptoms of pulpitis had decreased significantly, and had disappeared within two hours after the

insertion of the temporary filling. Two months after the placing of the permanent filling, all involved teeth were tested for pulp vitality. Without exception, the teeth had remained vital.

Treatment with triamcinolone will, at least in the majority of instances, make pulpectomy or pulpotomy unnecessary.

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**Histological effects of silver nitrate
on adult pulps**

Marvin B. Weiss. *J. Indiana D.A.*

39:294-299 Aug.-Sept. 1960

Englander, James and Massler (1958) showed that ammoniacal silver nitrate solution penetrated quickly and deeply through the carious dentin in the teeth of persons 17 to 21 years old, to produce severe injury of the pulp. The purpose of this study was to test the ability of silver nitrate to penetrate through the sound primary and secondary dentin in the teeth of subjects 40 to 66 years old, and to evaluate the effect of silver nitrate on the pulp.

Occclusal cavities were prepared in eight bicuspids of the four subjects, all of whom were scheduled for full mouth extractions. A fresh solution of ammoniacal silver nitrate was applied to the floor of each cavity for ten minutes. The cavity was wiped clean and eugenol saturated on a cotton pellet was applied to the cavity floor for one minute. The cavity then was filled with a thick mix of zinc oxide-eugenol. One bicuspid was extracted after one hour and the others after seven days. The teeth were sectioned, stained and studied histologically.

In every specimen, the silver nitrate had penetrated the primary dentinal tubules under the cavity almost to the pulp. The effects varied from slight disarrangement of the odontoblastic layer under shallow cavities, to total destruction of the odontoblasts under cavities of medium depth, to frank hemorrhage into the pulp, and necrosis, under deep cavities.

The defensive power of the pulp was remarkable. In a tooth in which the silver nitrate solution had penetrated through the dentinal tubules and deeply into the pulp tissue, causing severe hemorrhage, in the seven days before the tooth was

extracted, the damaged region had become walled off with normal pulp.

It is apparent that the use of silver nitrate on sound or carious dentin is not conducive to the maintenance of a vital, healthy pulp.

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Eye safety for dental officers

G. W. Ferguson. *U.S. Navy M. Newsletter*
36:7:22 Oct. 7, 1960

In some dental operations, especially those in which rotating instruments are used, debris frequently flies out of the mouth. If this material enters the dentist's eyes, it may cause mechanical injury or infection or may institute an allergic reaction.

Some authorities have advised dentists who do not need prescription lenses to wear glasses with plano lenses for protection.

With the introduction of dental instruments with much higher rotating speeds, the hazard of flying debris has increased. First, it is necessary to cool the instrument and the tooth and to lubricate the cutting area. The agents used are air, air-water spray, or water. Thus, debris-laden air, spray or water now tends to leave the oral cavity in greater quantities than formerly, and some of it may fly in the direction of the eyes of the dentist or his assistant. Second, higher speeds impart greater velocity to materials leaving the oral cavity. Third, because of reduced visibility and increased rapidity of cutting, most operators use direct vision operating; this brings the dentist's eyes closer to the patient's mouth and in more direct line with air-borne or water-borne material.

Most debris-laden water in the field of opera-

tion should be removed with efficient evacuating equipment; this requires an alert, competent assistant. Also, glasses with lenses of adequate size should be worn.

U.S. Naval Dental School, Bethesda, Md.

Biological effects of various cutting methods in cavity preparation: the part pressure plays in pulpal response

Harold R. Stanley and Herbert Swerdlow.
J.A.D.A. 61:450-456 Oct. 1960

This study was undertaken to determine the contribution of applied pressure to the pathologic alterations in the pulps of human teeth resulting from dental operative procedures. Three contra-angle air turbines were used to prepare cavities in 42 teeth *in vivo*. The forces applied to the cutting tool and to the teeth were measured by means of a no. 16 Hamilton Postal Scale kept on the bracket table. The teeth were extracted within 24 to 48 hours and examined histologically.

Coolants, although adequate to prevent burn lesions, did not prevent an inflammatory response in the pulp when the technic required an applied force greater than 8 ounces. A load below 8 ounces and preferably no more than 4 ounces appears to be desirable biologically. The combination of minimal load and controlled temperature produces very slight pulpal lesions.

Heavy pressure, whether or not continuous, even with the use of an adequate coolant, produces more damage than light continuous pressure does.

National Institute of Dental Research, Bethesda, Md.

Frequency of various types of malocclusion

H. S. Sheikh. *J. Indian Acad. Den.* 1:50-57
May 1960

To obtain information regarding the frequency of various types of malocclusion in Indian children, 500 children with malocclusion, attending the Department of Orthodontics of the Sir C. E. M. Dental College and Hospital, Bombay, India, were examined. The 187 boys and 313 girls ranged in age from 6 to 18 years. The children were divided into three age groups. The ethnic origin of each child was recorded. A clinical oral examination and appraisal of study casts were carried out, and the instances of malocclusion were classified according to Dewey's modification of Angle's classification (Salzmann, 1943).

In this group of children, the major orthodontic problem was proclination of the anterior teeth; 63.8 per cent of the 500 children exhibited this form of malocclusion (35 per cent of all the children had Class I type 2 malocclusion and 28.8 per cent had Class II Division 1 malocclusion).

Of all the children, 24.2 per cent had Class I type 1 malocclusion, crowding of the anterior teeth. A tendency was noted for the crowding of anterior teeth to decrease in incidence with an increase in age.

Anterior cross-bite (Class I type 3 malocclusion) was noted in 7.6 per cent of the children. This type of malocclusion tended to decrease in incidence with increase in age. Only small percentages of Class I type 4 and 5, and Class III, malocclusions were noted.

Since the incidence of Class II malocclusions seems to rise appreciably with age, treatment of this type of malocclusion should be commenced soon, whereas Class I malocclusions may be given second preference.

Undergraduate dental students in India should receive more training to identify and treat chiefly Class I type 2, Class II Division 1, and Class I type 3 malocclusions. Since these abnormalities can be treated with removable and functional appliances, more emphasis should be placed on simpler mechanotherapy in the teaching of undergraduate students and in refresher courses for general dental practitioners.

Types of malocclusions among children in the various ethnic groups tended to follow the general pattern.

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**Investigation of the muscular forces
exerted by the human tongue**

Zdeněk Jansky and Adolf Zelený.
Ceskoslov. stomat. 60:167-175 May 1960

The quantitative strength of the muscular forces exerted by the tongue was evaluated in 240 men and 409 women at the Stomatological Clinic of the University of Plzeň, Czechoslovakia. These 649 persons were treated at the orthodontic department of the clinic, and exhibited various abnormal patterns in the movements of the tongue.

The following muscular forces and effects were recorded by using a gnathodynamometer:

1. Abnormal forward movements of the tongue caused either nonocclusion of the anterior teeth associated with extreme tooth crowding and rotation, or nonocclusion of the anterior and posterior teeth associated with moderate tooth crowding and mobility.

2. Abnormal forward and downward movements of the tongue caused either an enlargement of the mandible associated with cross-bite and interdental spacing, especially between the lower anterior teeth, or a habitual tongue thrusting associated with an abnormal masticatory pattern and pathologic changes in teeth, gingival tissue and oral bones.

3. Abnormal lateral movements of the tongue caused nonocclusion in the bicuspid region.

Of the 649 patients with these abnormal patterns in the muscular activity of the tongue, 353 had an almost normal occlusion, whereas 226 had distocclusion and 70, mesiocclusion.

The initial muscular strength of the tongue seems to increase gradually according to the chronologic age. In the group investigated, the maximum muscular strength of the tongue coincided with the period of sexual maturity. After that time, the muscular forces exerted by the tongue decreased individually and were independent of the chronologic age.

No correlation between the maximum strength of the muscular forces of the tongue and failure of proper occlusion could be observed. However, the centrifugal force of the tongue played an equally significant part in the intermaxillary relations as well as in the formation of the oral bones.

The initial muscular strength of the tongue varied between 0.1 Kg. and 1.55 Kg. per square centimeter.

Orthodontic treatment using mechanical appliances could not eliminate the cause of malocclusion whether or not abnormal patterns in the muscular activity of the tongue or an incongruity between the size of the tongue and the circumference of the oral cavity were suspected as causative factors.

Nerudova 2, Plzeň, Czechoslovakia

Changes in the anterior overbite relationship following orthodontic treatment in extraction cases

Jack M. Magill. *Am.J.Orthodont.* 46:755-788
Oct. 1960

The effect of extraction therapy on incisal overbite in 63 patients—40 girls and 23 boys, ranging in age from 10 to 13 years—was ascertained. Lateral cephalometric roentgenograms, dental casts and photographs were used, and the interapical distance of the maxillary and mandibular incisors was measured.

All but two patients had less overbite after treatment than before treatment. Although most of the overbites increased slightly after retention, 85 per cent of the patients still had less overbite after treatment than before.

A comparative appraisal of Class I and Class II malocclusions revealed similar changes in overbites. Although the original overbite was larger in Class II patients, the incisors in Class II pa-

tients were depressed to a greater degree during treatment. This depression appeared to be necessary to compensate for the extensive lingual movement needed to correct malocclusions in this class. The best results attained with the least degree of settling were achieved in those patients with the most severe original overbites; almost all of these patients had Class II malocclusions.

The few patients who manifested deeper overbites after treatment and after retention than appeared originally had the smallest overbites before treatment began.

Every patient with an original deep overbite, without exception, showed less overbite after treatment and after retention.

When the overbite dimensions derived from the dental casts were considered, 95 per cent of the patients showed a smaller overbite after retention than at the beginning of treatment.

The average degree of overbite settling after retention for all patients was about 1 mm., irrespective of the method of measurement. On the other hand, an examination of the patients who had been out of retention for the longest period of time (an average of six years, six months) showed a settling of 1.5 mm. Nevertheless, the average overbite measurement still showed less incisal overbite than when treatment began.

The following conclusions were reached:

1. Tooth extraction should not cause an increase in the overbite if adequate therapy is employed. Deep overbite before treatment is not necessarily a contraindication to extraction therapy.

2. The overbite correction appears to be controlled directly, in large measure, by the type and quality of therapy used.

3. Patients with Class II, Division 1 deep overbites did not present any contraindication to extraction therapy. Without exception, uniformly decreased overbites after treatment and after retention were found.

4. The interapical distance and the general movement of the apices should be considered for a more complete analysis of the overbite changes.

5. Half the amount of overbite settling takes place within two years or less after the discontinuance of all retaining devices.

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**Importance of the occlusal plane
and of its relation
to the inclination of the condylar path
in complete and partial prosthetics**

G. Boccaletti. *J.dent.Belge* 51:347-362
May-June 1960 [in Italian]

The occlusal plane can no longer be considered as a fixed standardized element to be used in complete and partial prosthetics (as for instance Camper's plane). After study of its function, the occlusal plane has to be modified according to its relations to the inclination of the condylar path as well as according to the individual requirements of the kinematics of the lower jaw.

The occlusal plane may be analyzed by classifying its functions, by establishing its different inclinations, by studying the movements of the lower jaw and the facial arch and profile; all in their relation to the inclination of the condylar path.

Because the anatomic structure of the glenoid cavity cannot be changed or modified, it becomes necessary to alter the value of the angle of the condylar path by modifying the inclination of the occlusal plane. The value of that angle can be decreased or increased according to the prosthetic requirements and similarly the depth or the curvature of compensation and the cuspid height as well as the vertical dimension of the alveolar process can be altered. All these are fundamental factors in designing a well-conceived, balanced, partial or complete denture. Observing these interrelations and applying the findings to treatment planning are important to achieve a static and dynamic firmness of the denture.

The new occlusal plane should be created by the prosthodontist, and not by the dental technician. By the regulation of the inclination, the damaging effects on the tissues caused by the inserted denture can be neutralized. Abnormal condylar paths may show positive values higher

than 25 degrees and negative values below 0 degrees. In several instances, different condylar values have been observed in the same mouth.

Design and construction of partial and complete dentures must be based on scientific findings as used successfully in orthodontics. Unfortunately, many dentures have been based on laboratory technics and esthetic demands, and not on scientific findings which alone permit an accurate prescription to be given to the dental laboratory or technician.

The exact directions must be based on the study and analysis of the following elements: (1) plane of occlusion; (2) inclination of the condylar path; (3) curve of compensation; (4) height of cusplids; (5) height of the alveolar crest, and (6) axis of the clasps (of partial dentures).

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**The relationship between the cardiologist
and the prosthodontist**

Louis F. Bishop. *J.Pros.Den.* 10:989-994
Sept.-Oct. 1960

The dentist is in a strategic position to suspect the presence of heart disease in the dental patient. Before undertaking any major procedures, the dentist should inquire whether the patient has cardiovascular disease. If the history is positive, close cooperation between the dentist and physician is important. The dentist also is in a position to observe pulsations of the carotid arteries or jugular veins which might indicate underlying cardiac disease. The dentist may even recognize the early signs of cardiac failure.

Often, patients with pain in the jaw associated with coronary heart disease consult their dentist before they consult their physician. When bizarre jaw pain occurs associated with chest or arm discomfort, and when oral examination and roentgenograms fail to demonstrate a pathologic dental condition, coronary artery disease should be considered.

Emotions may have a profound effect on cardiac patients, changing the heart rate and rhythm, increasing the cardiac output, affecting the blood pressure and modifying the pattern of the electrocardiogram. The prosthodontist must do all he

can to control anxiety in the cardiac patient. A proper explanation of what is going to be done, how long it is going to take and how much pain the patient will have, should be given.

By proper management of anxiety and pain and by drug utilization (but avoiding the use of epinephrine and atropine), the dentist can do much to control and lessen myocardial irritability so that the changes in rhythm are not too great.

The control of pain in the cardiac patient is important, and close cooperation between the cardiologist and the dentist is indicated. If pain is not controlled, the heart rate may be increased and result in coronary insufficiency with angina pectoris or myocardial infarction.

The dentist is the best judge of the type of anesthetic to be used. In patients with coronary disease, epinephrine usually is prohibited since it will increase the heart rate and cause myocardial irritability. Some patients are affected adversely by the stimulation to the central nervous system that procaine may produce. When a dental surgical operation is necessary in a cardiac patient, hospitalization of the patient should be considered. Ether with oxygen is considered very safe when used to produce general anesthesia in most cardiac patients. Intravenous barbiturates appear to be safe in the hands of experienced anesthetists. In general, if any surgical operation is necessary, it should be done at one time rather than in several stages with the attendant danger of repeated use of anesthetics.

The arteriosclerotic patient always is subject to the possibility of an anginal attack. Nitroglycerin still is the most effective drug in the treatment of angina pectoris; 1/250 grain of nitroglycerin, in the form of a gelatin-covered capsule that can be crushed between the teeth, is the most effective way to administer this drug. When nitroglycerin is not available immediately, whisky sometimes can control anginal pain.

Patients with a history of coronary thrombosis who are receiving anticoagulants may bleed seriously, even from trivial injury. The dentist must anticipate the bleeding problem.

Should myocardial infarction result from anesthesia or surgical shock, subjective symptoms may include paroxysmal thoracic pain and fear of impending suffocation and death. Also, there may be evidence of shock, perspiration, vomiting, low

blood pressure and a thready pulse. In such instances, the patient should be maintained in a quiescent state, and pain should be relieved with meperidine hydrochloride until the patient can be moved to the nearest hospital.

Because it is important that the cardiac patient have proper nutrition, the cardiologist is particularly concerned with the insertion of properly fitting dentures for his patients. Any means to improve the desire to eat, including the provision of dentures with which to masticate properly, is of extreme value in the management of these patients.

141 East Fifty-fifth Street, New York 22, N.Y.

Saliva and denture retention

Stig G:son Östlund. *J.Pros.Den.* 10:658-663

July-Aug. 1960

Reduced atmospheric pressure and adhesion are widely accepted as the most important factors in the retention of complete upper dentures. The author (1954) showed that the adhesion between two plane surfaces moistened with a given fluid varies with the viscosity of the fluid. In an attempt to confirm the importance of the viscosity of the saliva in the retention found in laboratory studies of a denture, retention experiments were carried out *in vivo*.

The subjects consisted of ten edentulous patients (seven men and three women). Acrylic denture bases were made, placed in the mouth, and the pull necessary to tip the base from the posterior part of the palate was measured by using a spring balance applied in a cranial direction.

The mucous secretion of each subject was inhibited and stimulated. In the first experiment, the patient received 0.4 ml. methylscopolamine nitrate subcutaneously in the fornix vestibulum. Thirty minutes later, 20 measurements were made of the retention of the denture. To avoid the possibility of a completely dry mouth influencing the adhesion of the denture base to the mucosa, the base was moistened with water before it was placed in the mouth.

The following day, the patient was given two tablets of neostigmine bromide. Sixty minutes later, 20 measurements were made of denture retention.

The retention recorded in the two experiments differed considerably. The increase in retention after administration of neostigmine varied from 57 to 150 per cent. It was so pronounced that statistical analysis must be regarded as superfluous.

It may be concluded that secretion from the palatine glands in the region covered by the base of a complete upper denture is of great importance for adhesion of the prosthesis. This does not imply that other factors need not be considered.

Royal Dental School, Malmö S, Sweden

Clinical and practical experiences with "Impressional," a silicone rubber base elastic impression material

A. Brandon. *Zahnärztl. Welt & Reform*
61:542-550 Sept. 10, 1960

During the last decade, there has been a vast increase in the brands of elastic impression materials available to dental practice. It has become possible to reproduce the teeth and their supporting and surrounding tissues with an accuracy previously thought impossible.

"Impressional," a silicone rubber base elastic impression material, produced by Bayer, Germany, was investigated by the author at the Dental Clinic of the University of Hamburg and in his own practice.

Impressional is the most recent of the elastic impression materials produced in Europe. It is light in color and easy to manipulate. The rubber is dispensed as a paste in a collapsible tube, and is cured by addition of a liquid containing organometallic salts. The producer's instructions indicate how many drops of liquid are required per unit length of the paste. Mixing time is the minimum time needed to distribute the curing agent throughout the paste and must be carefully controlled.

Impressional must be inserted into the mouth as soon as the mixing procedure is completed, to avoid the formation of bubbles or folds in the final impression. The material, however, quickly loses its ability to flow.

Impressional is odorless, tasteless, not sticky when set, does not gag the patient, has an attractive appearance, can be easily mixed and copperplated, and can be used in all types of impressions.

In instances in which denture patients require construction of new dentures, the material is a great time-saver. Impressions can be taken inside the old dentures; no adhesive is used, and the surface is well dried.

Because of its toughness, Impressional has a great advantage over the customary impression materials. Close-fitting acrylic trays can be used to minimize the bulk of the impression material, thereby reducing the actual dimensional changes so that the casts may be poured several days later with usable exactness.

The clinical techniques available for the use of the material are as follows:

1. Injection with a syringe to introduce the soft elastic material into all corners of the cavities before the main mass is inserted with a tray. The main limiting factor is the viscosity of the material which determines the size of the injection aperture.

2. Wash, which enables the material to be used as a thin cover over a trimmed composition impression.

3. Copper rings or bands, made of a metal which is not easily distorted after withdrawal, can be used to take individual impressions of a tooth. Although the ring can be perforated to provide mechanical retention, the additional use of an adhesive is recommended.

Impressional has proved to be tough, accurate and strong, but requires more skill to produce an impression free of blemishes than other impression materials. It has a high coefficient of thermal expansion, which may be of value in controlling the size of the final model to finer dimensions.

During the tests made at the clinic and in dental practice, Impressional exhibited the best elastic recovery values of any material investigated.

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Periodontics

Influence of local periodontal treatment on tooth mobility and gingival inflammation

B. P. Wüst, K. R. Rateitschak and H. R. Mühlemann. *Helvet. odont. Acta* 4:58-61 Oct. 1960 [in German]

The influence of local periodontal treatment procedures (elimination of gingival irritations, curettage and selective grinding, as well as splinting) on the degree of tooth mobility and gingival inflammation was studied at the Dental Institute of the University of Zurich, Switzerland.

Tooth mobility measurements were made in 51 patients (average age, 40 years) with the micro-periodontometer and the macroperiodontometer, both developed by Mühlemann (1960). Forty-two of the patients had been treated for periodontitis, and the other nine for degenerative gingival atrophy or hypertrophy.

The degree of gingival inflammation in the same 51 patients was evaluated by using the PMA index, introduced by Massler, Schour and Chopra (1950), and modified by Hirt and Mühlemann (1956).

The principle of the PMA index consists in separate evaluation of three topographically divided parts of the gingiva as follows: P = the interdental papilla filling the space between the necks of two adjacent teeth; M = the marginal gingiva around the neck of a tooth, positioned coronally to the gingival sulcus, and A = the attached gingiva bound to the alveolar bone by dense connective tissues.

The degree of inflammatory reaction of the gingiva was determined in PMA units as follows: (1) 0 = free from inflammation, pale pink color of the gingiva, and no hemorrhage after strong finger pressure; (2) 1+ = slight inflammation, insignificant change in color and structure of the gingiva; (3) 2+ = medium inflammation associ-

ated with light edema formation, luster of the gingival surface, slight hemorrhage after finger pressure, and a tendency of the inflammatory process to spread to the attached gingiva; (4) 3+ = severe inflammation, multiple edema formation, dark red color of the gingival surface, spontaneous hemorrhages and involvement of the attached gingiva, and (5) 4+ = extremely serious inflammation, infection and development of ulcerating lesions.

Of the 51 patients, 26 wore removable splints. The changes in tooth mobility were determined two months after periodontal treatment in all 51 patients, and after from 560 to 635 days in 21 patients.

The decrease in tooth mobility in the non-splinted group was 11.9 per cent after two months, and 25.3 per cent after 559 days. The splinted group, however, showed an increase in tooth mobility of 5.8 per cent after two months but a decrease of 11.2 per cent after 635 days.

A significant reduction in the degree of gingival inflammation after periodontal treatment was observed in all patients whether or not they wore removable splints. The PMA index values (in PMA units) were as follows:

1. 0 = 24.3 per cent immediately after treatment; 64.9 per cent, 66 days later, and 64.1 per cent, 606 days later.

2. 1+ = 27.1 per cent immediately after treatment; 27.9 per cent, 66 days after, and 22.2 per cent, 606 days later.

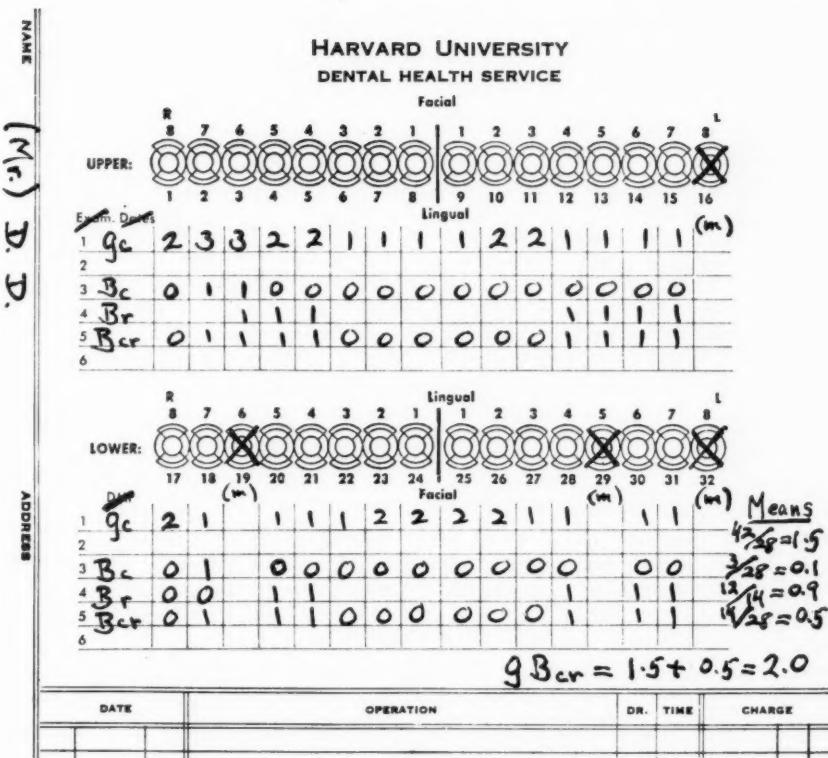
3. 2+ = 24.3 per cent immediately after treatment; 6.3 per cent, 66 days after, and 10.3 per cent, 606 days later.

4. 3+ = 22.3 per cent immediately after treatment; 0.9 per cent, 66 days after, and 3.4 per cent, 606 days later.

5. 4+ = 2.1 per cent immediately after treatment, and 0 per cent after 66 and 606 days.

These results indicate that success or failure of local periodontal treatment, including splinting, should be re-evaluated at least two years after completion of the treatment. The effect of removable splints which may increase tooth mobility should also be taken into consideration.

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Clinical examination record of gingivitis and bone loss for a typical subject. Gc = gingiva, clinical. Bc = bone, clinical. Br = bone, bitewing roentgenogram. Bcr = bone, clinical and roentgenographic. GBcr = GB count, clinical and roentgenographic

Gingival-bone count: a method for epidemiological study of periodontal disease

James M. Dunning and Leon B. Leach. *J.D.Res.*
39:506-513 May-June 1960

Although the epidemiological study of periodontal disease is one of the important challenges before the dental profession, it has been hampered by the lack of quantitative measurements that are reasonably accurate and yet simple enough to be applied to large populations without excessive expenditures of time or the likelihood of wide interpretative differences between observers.

A new index is proposed in which simple, subjective measurements of gingival conditions can be combined with simple, proportional measurements of bone loss in order to produce a com-

posite score, the original components of which can be identified. The index permits differential recording of gingival and bone conditions. Subjective measurement of gingivitis is made on a scale from zero to three for each tooth. Proportional measurement of bone loss is made on a scale from zero to five. Whole-mouth mean scores are added together to obtain what could be called a "GB count." This count evaluates gingivitis and bone loss on a 3 to 5 basis. This is an arbitrary relation, realistic only to the extent that bone loss represents a greater threat to the usefulness of the tooth than does gingivitis. No attempt is made to evaluate the missing teeth in the mouth. The scoring system is applicable whether explorer examination, bitewing roentgenographic examination, full roentgenographic survey, or a combination of these methods is used.

Scoring system for GB count

Gingival score (one score is assigned to each tooth studied. A mean then is computed for the whole mouth):	
Negative	0
Mild gingivitis involving the free gingiva (margin, papilla, or both)	1
Moderate gingivitis involving both free and attached gingiva	2
Severe gingivitis with hypertrophy and easy hemorrhage	3
Bone score (one score is assigned to each tooth studied. A mean then is computed for the whole mouth):	
No bone loss	0
Incipient bone loss or notching of alveolar crest	1
Bone loss approximating one fourth of root length, or pocket formation on one side not over one half of root length	2
Bone loss approximating one half of root length, or pocket formation on one side not over three fourths of root length. Slight mobility	3
Bone loss approximating three fourths of root length, or pocket formation on one side to apex	4
Moderate mobility	5
Bone loss complete. Pronounced mobility	6
Maximum possible GB count per person	8

The index in its present form does not distinguish between slight involvement of many teeth and extensive involvement of a few teeth. If information as to type of bone resorption is desired, additional "typing" of cases will be needed, as was done by Day and Shourie (1950).

A trial study of the method was carried out on 108 students from Harvard and Radcliffe colleges. In these students gingival disease was not uncommon, but bone loss was, for the most part, incipient. The GB count was 1.79. This figure was composed of scores of 1.12 for gingival disease out of a possible score of 3, and 0.67 for bone loss out of a possible score of 5.

The illustration depicts the clinical examination record of gingivitis and bone loss for a typical subject.

Large, standard deviations appeared in all measurements as a result of the high variability of periodontal disease. There also was a great difference between the mean values obtained by clinical examination alone, those obtained by bitewing roentgenograms alone, and those obtained by combined clinical and roentgenographic examination. However, when bone scores determined by bitewing roentgenograms and clinical examination were paired with bone scores by bitewing roentgenograms alone, a high correlation coefficient (0.91) resulted.

Field study under a variety of conditions will be needed in order to test the practicality of the index and its discriminative value.

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The role of bacteria in periodontal disease

Basil G. Bibby. *J.Tennessee D.A.* 40:287-295 Oct. 1960

Without ignoring the possibility that systemic, traumatic or other factors may play a part in the origin and advancement of periodontal disease, there is now fairly general agreement that the destructive processes in gingivitis and periodontitis are attributable directly or indirectly to bacterial action. The significance of any single species of microorganism, or the nature of the bacterial relationship, is not yet established.

The continual presence on the gingiva of various types of microorganisms, such as streptococci, does not exclude the possibility that they may cause pathologic conditions. The primary change probably is in a lowering of tissue resistance, or an increase in the virulence of the resident flora, rather than the advent of a specially invasive type of organism.

A direct effect of bacteria by invasion of the tissue no longer is regarded as essential for the production of periodontal disease; instead, it is believed that disturbances of the periodontium probably result from externally placed bacterial accumulations giving rise to tissue-destructive products which diffuse into the tissues to produce the clinical signs of periodontal disease. Another possibility is that microorganisms, by playing a part in the formation of calculus, may contribute components which irritate or destroy tissue.

Evidence that organisms from the human mouth are capable of producing infective processes was provided by injection of scrapings from pathologic or normal gingivae and from periodontal pockets into the muscles of animals, where it gave rise to necrotic abscesses (Smith, 1930; Rosebury and others, 1950; Hemmens and Harrison, 1942). It appears that no specific or extraneous type of infectious process is responsible for periodontal disease, but rather that organisms normally present in the mouth can, under certain circumstances, contribute to its causation.

That some mouth organisms may have invasive capacities has been indicated by recent work (Hampp and others, 1960), which has shown that intradermal injections of cultures of mouth spirochetes will multiply in animal tissues and

cause local reactions, and that when these organisms are joined with cultures of anaerobic streptococci, pathologic manifestations result.

That bacteria may cause periodontal disease without entering the tissues is suggested by the knowledge that when external deposits of debris containing bacteria are removed from the gingival margins, gingival inflammation generally disappears, and, conversely, that when large accumulations of organisms are allowed to persist on the gingivae, inflammation follows.

It has been found that applications of hyaluronidase produce changes in gingival tissues of the sort seen in gingivitis, and that hyaluronidase is produced by mouth bacteria of the type that accumulate about the gingivae. That hyaluronidase is associated with periodontal disease is also indicated by the demonstration (Lisanti, 1950) that it is present in greater amounts in mouths with periodontal disease.

Although the process of calculus formation still is not clear, the weight of opinion at present strongly favors the theory that bacteria play a part.

In the control of periodontal disease, it seems that little can be done except to reduce to the lowest possible point the bacterial population associated with the periodontal tissues. Antibacterial agents have limited usefulness; more lasting results can be obtained by keeping accumulations of bacteria away from the necks of the teeth by means of good oral hygiene, good periodontal scaling and cleaning, and, where necessary, the re-establishment of conditions which will make this possible.

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Research in periodontology in Japan

*Yoso Imagawa. *Parodontol., Zürich* 14:108-111
Sept. 1960 [in English]*

Recent research in the field of periodontology in Japan is carried out mainly by two groups. The first group, called Japanese Organization for Research of Periodontology (J.O.R.P.), is an academic society consisting of approximately 300 members. The general meeting of the J.O.R.P. is held annually and about 30 individual research works usually are reported at the meeting. In 1960, the annual meeting was held at Sapporo City, Hokkaido, in the middle of August. A resolution was adopted instructing the board of the J.O.R.P. to join the Association for Research on Periodontal Disease (ARPA Internationale) as the association's Japanese branch.

The second group, supervised and financially supported by the Japanese Ministry of Education, consists of 38 scientists in a research center on periodontology. These scientists are mainly concerned with studies on the etiology of periodontal disease and with investigations of the systematic treatment methods and technics suitable for Japanese periodontal practice.

Between 1953 and 1959, members of the research group have published 15 works describing scientific studies of the structure of the periodontal tissues and the incidence of periodontal disease in the Japanese population.

These 15 contributions to Japanese periodontal research are listed and then summarized briefly.

Tokyo Medical and Dental University, 3-Chome, Yushima, Bunkyo-ku, Tokyo, Japan

Anesthesia
and analgesia**Advantages of endotracheal anesthesia
in oral surgery**

W. Schmücker. *Med.Welt* 19:1212-1219
Aug. 1960

With the introduction of intubation and of muscle relaxants combined with the renewed use of nitrous oxide, endotracheal anesthesia has found widespread acceptance in oral surgery, especially for anesthesia in children.

Endotracheal anesthesia has the following advantages: (1) minimal risks in patients with heart or respiratory diseases; (2) increased ability to maintain a free airway; (3) decreased danger of aspiration of blood or mucus; (4) less psychic trauma, especially in children; (5) less adverse tissue reactions than experienced by use of a local anesthetic agent; (6) less chance of postoperative infection, and (7) increased possibility to extend the benefits of extensive oral surgical treatment to older and debilitated patients.

There were no deaths and hardly any complications in 10,000 oral surgical interventions performed with the patient under endotracheal anesthesia at the St. Catharine Hospital in Stuttgart, Germany.

Kriegsbergstrasse 60, Stuttgart N, Germany

**Steroid anesthesia for patients
with severe injuries of the jaws**

Wilhelm Bick. *Deut.zahnärztl.Zschr.*
15:886-888 June 1, 1960

In patients with severe pathologic (anatomic) changes in the maxillofacial region, such as caused by ankylosis of the temporomandibular joint, fractures of the jaw sustained in accidents and postoperative complications after resection of the mandible or removal of facial scar contractions, the application of muscle relaxants for in-

filtration anesthesia is often contraindicated. In such patients, local anesthetics or barbiturates should not be employed.

The steroid anesthetic 21-hydroxy-pregnandion-sodium succinate (Presuren, Schering), tested clinically and experimentally, did not influence the blood circulation but inhibited adverse reflexes. This drug, intravenously injected, appeared to be suitable for anesthesia in patients with severe jaw injuries.

This steroid anesthetic was used in 15 patients who had sustained severe injuries by accidents (soft tissue wounds of the face or fractures of the jaws) at the West German Clinic of Oral Surgery (*Westdeutsche Kieferklinik*) in Düsseldorf, Germany.

Fifteen minutes after premedication with 100 mg. meperidine hydrochloride and 0.5 mg. atropine, 1.0 Gm. Presuren dissolved at body temperature in 20 cc. saline was injected rapidly. The initial injection was followed almost immediately by a second injection to obtain a more favorable distribution of the anesthetic and to prevent damage to the walls of the blood vessels. Considerable care had to be taken to maintain an exact intravenous position of the injection needle because perivasal injection could cause severe inflammation.

In a period varying from five to ten minutes after the initial injection, a satisfactory stage of anesthesia was obtained which in isolated instances was deepened by the use of an anesthetizing spray and by hypopharyngeal intubation anesthesia with a Magill tube.

During anesthesia and surgical intervention, the entire laryngeal region was packed with moistened gauze to prevent adverse aspiration. Anesthesia was maintained by nitrous oxide and at least 20 per cent oxygen. In some instances, anesthesia was supported by administration of additional but smaller doses of meperidine hydrochloride.

Even in operations lasting for more than five hours, no additional doses of the steroid anesthetic were required. After termination of anesthesia and extubation, most of the patients were completely conscious, and none of them showed postoperative or postanesthetic complications.

Himmelgeisterstrasse 152, Düsseldorf, Germany

Baytinal anesthesia in gerodontics

S. Prommersberger. *Chirurg* 30:552-555
Aug. 1960

Baytinal (Bayer), the sodium salt of 5-allyl-5 (beta-methylpropyl) thiobarbituric acid, is a recently introduced ultra-short-acting anesthetic agent. With this anesthetic, duration of deep anesthesia lasts only for a few minutes. However, the dosage should be individually calculated on the basis of the anesthetic effect desired. Optimal dose recommended for anesthesia in geriatric patients is between 8 and 15 cc. of a 10 per cent solution, very slowly injected.

Baytinal anesthesia was used in 11,254 dental procedures performed on patients of various ages, among them about 500 patients between 65 and 90 years old. All interventions were carried out at the dental department of the Hospital of the Brethren of Charity in Regensburg, Germany.

In instances in which deeper anesthesia was indicated, Baytinal was injected to induce anesthesia, and pure nitrous oxide was used as an adjunct. The anesthesia permitted the performance of all oral surgical interventions (especially tooth extractions under almost ideal conditions) without excessive salivation and adverse side effects, independently of the patient's age.

Geriatric patients appeared emotionally quiet with an unusually rapid recovery. Only two of the 11,254 patients showed side effects (respiratory arrest) which, however, were easily controlled.

The use of the ultra-short-acting anesthetic agent permitted adequate management of most geriatric patients without utilization of ataractic drugs. No significant decrease in the blood pressure occurred. The incidence of vomiting was significantly decreased.

Baytinal anesthesia provided safe dental interventions in children, adults and old (senile) patients. The advantages of this drug are as follows: (1) rapid induction of anesthesia; (2) less toxicity; (3) absence of side effects; (4) quick recovery, and (5) minimum loss of consciousness.

Especially in geriatric patients, Baytinal produced an effective anesthesia with a relatively wide margin of depth, area and safety. Anesthesia with this drug, routinely injected, was satisfactory in 97.4 per cent of the 11,254 instances, and in

98.3 per cent of the 500 patients more than 65 years old.

Krankenhaus der Barmherzigen Brüder, Regensburg, Germany

A clinical evaluation of 2-chloroprocaine as compared to lidocaine HC1

Morton Malkin, George H. Schmidt, Isadore Weinstein and Pinus Sherman. *New York State D.J.* 26:297-300 Aug.-Sept. 1960

This study was undertaken to test the effectiveness of a comparatively new local anesthetic, 2-chloroprocaine, in dentistry, and to compare it to a well-established agent, lidocaine hydrochloride. The project was carried out in a hospital's outpatient department, and involved all types of oral surgical procedures. Three solutions in cartridges of 1.8 cc. each were used: (1) 2-chloroprocaine 2 per cent with epinephrine 1:100,000; (2) lidocaine hydrochloride 2 per cent with epinephrine 1:100,000, and (3) lidocaine hydrochloride 2 per cent without epinephrine. The investigators knew only if the solutions contained epinephrine, and not the type of local anesthetic. More than 800 injections were given for more than 300 procedures.

Lidocaine gave good block anesthesia in 95 per cent of the instances, fair in 4 per cent, and poor in 1 per cent; 2-chloroprocaine gave good block anesthesia in 74 per cent of the instances, fair in 20 per cent, and poor in 6 per cent. For infiltrations, both lidocaine and 2-chloroprocaine gave good results in about 90 per cent of the instances. The greater success of lidocaine for block anesthesia is attributable to greater potency or to greater spreading action through soft tissues. Therefore, when 2-chloroprocaine is used for block anesthesia, accuracy is a critical factor.

No systemic, toxic or allergic manifestations for either agent were noted. Four instances of syncope were encountered but were considered to be of psychogenic character. Three subjects reported pain at the injection site after lidocaine injections, but none after 2-chloroprocaine injections.

With the block technic, the duration of anesthesia was 3 or more hours with lidocaine, and

1½ to 2 hours with 2-chloroprocaine. With the infiltration technic, the duration of anesthesia was 1½ to 3 hours with lidocaine, and 1 to 2 hours with 2-chloroprocaine. When used without epinephrine, 2-chloroprocaine had a duration of numbness of about 15 to 20 minutes, with little or no anesthetic potency.

2-chloroprocaine has many of the qualities desired of a local anesthetic, although it is somewhat inferior to lidocaine for mandibular block anesthesia. Because of the low toxicity, shorter duration and generally good clinical effect of 2-chloroprocaine, this anesthetic probably will find a place in the practice of dentistry.

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Oxygen: the antidote for systemic toxic reactions from local anesthetic drugs

Daniel C. Moore and L. Donald Bridenbaugh.
J.A.M.A. 174:842-847 Oct. 15, 1960

Since 1925, most physicians who use local anesthetic solutions have given a barbiturate routinely preoperatively to "protect" the patient against a systemic toxic reaction from the local anesthetic drug. Furthermore, if a systemic toxic reaction occurs, these physicians immediately administer a barbiturate intravenously as the first step in the treatment of such a reaction. Such use of barbiturates is irrational. Barbiturates given preoperatively do not prevent systemic toxic reactions but only mask the early warning signs of such a reaction. Barbiturates given intravenously to treat such a reaction may do harm rather than good and may hasten the death of a patient. The administration of oxygen, not a barbiturate, is the rational therapy in treating a systemic toxic reaction from a local anesthetic.

In a 12 year period the authors performed 36,113 regional block procedures. Of 533 systemic toxic reactions which subsequently occurred, 430 were minor and were treated with oxygen alone. Ten patients exhibited unconsciousness and apnea as the only signs of a severe systemic toxic reaction from a high level of the local anesthetic drug (tetracaine) in the blood.

All ten were given artificial respiration with oxygen by bag and mask; they recovered from the apnea in from 10 to 20 minutes. Ninety-three severe systemic toxic reactions with convulsions were observed; the convulsions of 84 of the 93 patients were stopped by the administration of oxygen by bag and mask. Five of the remaining nine patients who had convulsions were treated prior to 1956, and intravenously given thiopental sodium was used to control the convulsion so that the patient could be oxygenated. After the administration of the intermittent doses of thiopental sodium (50 mg.; total dosage did not exceed 300 mg.), the patient responded after 30 to 45 minutes but did not fully regain consciousness for two to three hours. The remaining four patients were treated after 1956 and received 40 mg. of succinylcholine chloride intravenously. They responded within 10 to 15 minutes after the 4 to 10 minutes of apnea, and were fully aware of their surroundings in 30 to 45 minutes, but with no recollection of the convulsive episode. If severe sustained convulsions should occur, succinylcholine chloride is the drug of choice to stop the convulsion and allow adequate oxygenation of the patient.

The pharmacologic basis for a systemic toxic reaction has been attributed to (1) excessive stimulation of the brain cells by the local anesthetic drug, with subsequent depression of the respiratory and cardiovascular centers in the medulla from overstimulation, and (2) direct depression of the myocardium. The correction of the oxygen want is the key to the successful treatment of the reaction. To correct the hypoxia, oxygen must be delivered to the alveoli and circulation must be maintained so that the oxygen may reach the tissues.

Any practitioner employing a local anesthetic drug must be capable of: (1) establishing a clear airway and maintaining it; (2) delivering oxygen to the lungs and alveoli by means of artificial respiration; (3) starting intravenous administration of fluids; (4) raising the blood pressure with vasoconstrictor drugs, and (5) if necessary, instituting manual systole.

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Fractures

**Fracture of the lower jaw
in a two year old boy: report of case**

H. Bruner, Sr. *Zahnärztl. Welt & Reform*
61:732-734 Nov. 25, 1960

A two year old boy was brought to the author's dental office for treatment of facial injuries sustained in a car accident.

Clinical examination revealed the presence of a fracture of the lower jaw. The right and left fragments of the mandible were displaced laterally. Roentgenograms, however, failed to show definite fracture lines. The lower right deciduous cuspid was lost, and the four lower incisors were displaced posteriorly for about one fourth of an inch.

The indicated treatment consisted of immediate realignment and immobilization of the mandibular fragments in proper occlusal relations with the upper teeth. This was accomplished by the use of an individually constructed splint—made of acrylic resin—which was wired to orthodontic bands and tubes and cemented securely to the remaining lower teeth.

Alginate impressions were taken of both jaws. Casts were poured in stone. The cast of the lower jaw was sectioned at the probable fracture line, and the normal occlusal relations were determined.

The re-established occlusal relations were duplicated in wax, and a cast stone base of the realigned sections of the mandible was made.

The cast of the upper jaw and the reassembled sections of the cast of the lower jaw were mounted in correct relationship on an articulator.

Labial and lingual arch wire (0.036) strengtheners were constructed in proper length and contour of the reassembled mandibular cast.

The cast of the lower jaw was stained with a separating medium to facilitate removal of the acrylic splint. A labial and lingual arch splint,

covering as much as possible of the arch, was made of self-curing acrylic resin. The labial and lingual parts of the splint were joined by saddles covering the region between the cuspid and the second molar.

After the splint was removed from the cast, sufficient acrylic resin was eliminated to create space for the incisors and molars.

A straight handpiece (no. 557) bur was used to drill holes in the labial and lingual sections of the splint at the position of the incisors and the second molar. Because of the anatomic form of these teeth, direct ligation with stainless steel wires was impossible. Stainless steel orthodontic bands had to be constructed for the incisors by using an electric spot welder. Bands for the molars were made with buccal and lingual tubes. The bands were then cemented to the teeth.

A local anesthetic injected into the mandible controlled completely the pain caused by instrumentation and manipulation. With gentle pressure, the mandibular fragments were forced into normal position and the acrylic splint was inserted and wired to the buccal and lingual tubes of the molars. The anterior teeth were likewise ligated to the splint.

Four weeks after treatment, the occlusal relations were satisfactory. Six months later, roentgenograms showed that no apparent injuries to the unerupted permanent teeth had occurred and that growth and development of these teeth were normal.

Oral surgical, orthodontic and prosthetic procedures had to be synthesized in the treatment of this patient. Without knowledge of anatomy, biology and mechanics, no adequate treatment would have been possible.

The Olathe Clinic, Olathe, Kans.

**Fractures of the facial skeleton:
statistical report on 1,566 instances**

K. Schuchardt, L. M. Brichetti
and N. Schwenzer. *Stoma* 13:159-171 Aug. 1960

Advances in motorization and industrialization in all civilized countries have greatly increased the incidence of fractures of and traumas to the facial skeleton. These fractures not only occur more frequently but they are far more complicated

than in past decades. It appears that now patients sustaining such fractures are in age groups in which, in the past, the rate of accidents used to be lower.

The head is the most exposed part of the human body and, therefore, is often involved in traffic accidents. At present, almost as many fractures of the facial skeleton are treated annually as occurred during World War II from battle injuries.

From 1946 to 1957, 1,566 fractures of the facial skeleton were treated at the North-West German "Jaw-Clinic" of the University of Hamburg. There were 324 fractures of the upper jaw (20.8 per cent), 68 fractures of both jaws (4.3 per cent), and 1,174 fractures of the lower jaw (74.9 per cent). Among the mandibular fractures, there were 651 (55.5 per cent) simple fractures and 523 (44.5 per cent) multiple fractures. In 767 (44.8 per cent) instances fracture of the jawbone occurred; in 469 (27.4 per cent), the articular process was involved; in 317 (18.6 per cent), the angle of the jaw was fractured; in 81 (4.7 per cent), the alveolar process was involved, and in 76 (4.5 per cent), the ascending ramus was fractured.

There were 71 (6.1 per cent) mandibular fractures in patients between 0 to 10 years old;

196 (16.6 per cent), 11 to 20 years old; 377 (32.2 per cent) 21 to 30 years old; 210 (17.8 per cent), 31 to 40 years old; 186 (15.8 per cent), 41 to 50 years old; 95 (8.1 per cent), 51 to 60 years old, and 39 (3.4 per cent) in patients 61 years old or older.

There were 140 mandibular fractures (11.9 per cent) in female patients, and 1,034 (88.1 per cent) in male patients.

There were 372 mandibular fractures (31.7 per cent) sustained in traffic accidents; 118 (10 per cent), in occupational (mainly industrial) accidents, and 684 (58.3 per cent), caused by blows or falls.

Internal wiring to obtain fixation of facial fractures was the treatment method in 1,072 instances; combined extraoral and intraoral wiring, in 208 instances, and surgical repositioning (including plastic repair), in 164 instances.

The majority of the patients were able to return to work soon after discharge from the clinic. Infections and other posttreatment complications were rare. In all instances, re-establishment of normal occlusion was the criterion of adequate reduction of fractures of the upper and lower jaws.

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**Intraoral excision
of the submandibular gland**

D. Downton and G. Qvist. *Proc. Roy. Soc. Med.*
53:543-544 July 1960

The submandibular gland can be exposed easily through the mouth by incision of the mylohyoid muscle. The advantages of this technic are the avoidance of an external scar and of injury to the mandibular branch of the facial nerve.

The anesthetic is administered by intranasal intubation. The throat is packed. In the edentulous patient, a curved incision is made through the mucoperiosteum along the alveolus from the retromolar pad to the cuspid region (Fig. 1). If molars are present, the incision is carried around the lingual side of the necks of the teeth. The mucoperiosteum is reflected medially (Fig. 2). If the mylohyoid ridge is pronounced, it is removed with a chisel; otherwise, the muscle is separated from its attachment to the mandible.

On retraction of the separated mylohyoid muscle, the submandibular gland is seen. The anterior portion is exposed by blunt dissection. The gland is rendered more prominent by digital pressure applied beneath the lower border of the mandible by an assistant. Delivery of the gland into the wound usually is easy.

The body of the gland is gripped with tissue forceps and pulled up through the incision. The loop of the facial artery frequently can be freed completely from the gland. Occasionally it may be necessary to divide it between ligatures. The lingual nerve can be seen through the distal part of the incision. It passes anteriorly and medially across the submandibular duct. It is possible to follow the duct forward to its termination. Also it is possible to remove it completely if that proves necessary.

If the molars are present it may be necessary to make a 2 cm. cervical incision so a finger can

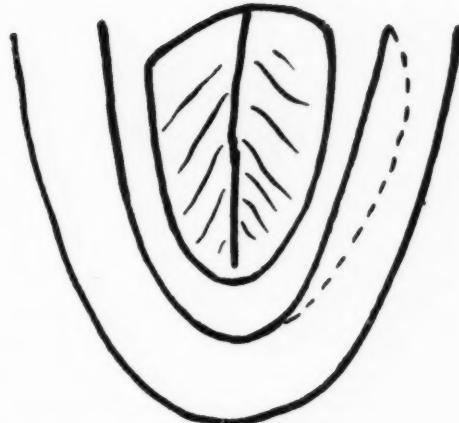
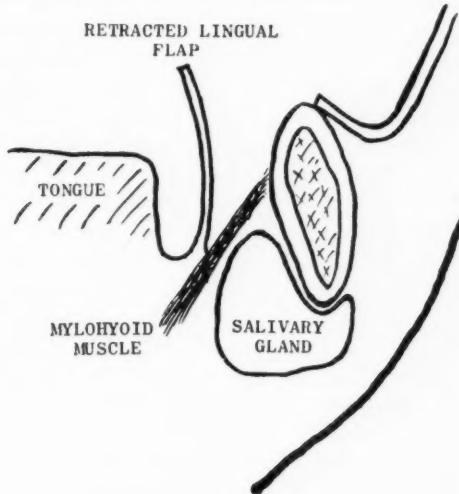


Figure 1 Incision shown by dotted line

Figure 2 Mucoperiosteal flap reflected



be inserted to give a greater upward pressure directly on the gland.

After the gland has been removed, the mucoperiosteal flap is sutured back into place loosely with interrupted silk sutures. Postoperatively a hematoma, which resolves in three or four days, occurs in the submandibular space. The operation is carried out under penicillin cover—1 mega unit of penicillin twice daily for five days.

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Extractions

Dental extractions in patients with heart disease

H. McIntyre. *Brit.M.J.* No. 5188:1778-1781
June 11, 1960

At the Manchester Royal Infirmary, a simple technic has been used in the management of 313 patients with heart disease, who required dental extractions. In this series, no deterioration of the cardiac condition attributable to dental treatment occurred.

Generally, the indications for extraction in cardiac patients are those used in routine dental practice. However, in patients with congenital lesions or rheumatic valvular disease, conservative therapy is the method of choice. Conservative therapy will lessen the risk of inducing a subacute bacterial endocarditis. Thus, root canal therapy is avoided in patients with apical infections; in patients with periodontal disease associated with mobility of the teeth, conservative periodontal therapy necessitating frequent gingival massage is not undertaken; and infected teeth are removed two to three weeks prior to cardiac surgery, as a precautionary measure, to allow adequate healing of the sockets.

A careful dental examination is made. To dispel apprehension in nervous patients, a dose of from 90 to 120 mg. phenobarbitone is given orally four hours before extractions, or 90 to 180 mg. secobarbital sodium (Seconal Sodium) is given orally one and a half hours before operation.

Patients with a history of rheumatic or congenital heart disease, or who give a history of a previous attack of subacute bacterial endocarditis, receive a single injection of soluble penicillin 0.5 mega unit one hour preoperatively, plus procaine hydrochloride 0.3 mega unit. The lateral aspect of the thigh is the most convenient site for injection in dental patients. If a history of hypersensitivity to penicillin exists, the

patient receives 500 mg. of tetracycline in four doses before and after extraction.

Anticoagulant therapy is discontinued two days prior to the extractions and is resumed the day after operation.

Local anesthesia is used in most patients, and has been found to be both satisfactory and convenient. A solution of 2 per cent lidocaine hydrochloride with epinephrine 1:80,000 gives adequate anesthesia. The total amount of the solution used in any one patient varied from a minimum of 1.5 ml. to a maximum of 8 ml. Routine regional anesthetic technics, as determined by the teeth to be extracted, are used. The more sensitive regions of the mouth have a surface application of a 5 per cent lidocaine ointment two or three minutes before the injection of the local anesthetic. In addition, infiltration of the buccal and lingual mucosa over the appropriate teeth is carried out. To allow adequate time for the anesthesia to occur, at least 10 minutes should elapse prior to extractions in the upper jaw, and at least 15 minutes prior to extractions in the lower jaw. General anesthesia is required in the very young, in uncooperative patients and in the presence of acute infection.

Generally, the ambulant cardiac patient who is physically able to attend the dental clinic is regarded as suitable for outpatient treatment, irrespective of the nature of the heart lesions. Multiple extractions, even a complete dental clearance, do not influence the decision regarding hospitalization.

Teeth are removed by standard procedures. If hemostasis is not achieved by means of pressure at the end of half an hour after extraction, sutures are used. Mouthwashes are not advisable during the first 24 hours after operation, as their use in this period may interfere with normal hemostasis.

A striking feature in this group of patients was the extent of caries. These patients appeared to have suffered much before seeking dental treatment. Despite the high incidence of dental sepsis, the incidence of dry socket was not excessive.

No sudden death in the chair occurred. A six year old patient with Eisenmenger's complex died ten hours after coming out of anesthesia.

In the first 24 hours after extraction, no patient developed myocardial infarction.

Three patients with coronary artery disease died as a result of coronary thrombosis at intervals varying from two to four months after extractions; these deaths were believed not to be attributable to the dental operations.

One patient with hypertension developed paroxysmal tachycardia 48 hours after a dental clearance in the presence of gross sepsis. No paradoxical embolism occurred after extractions in the patients with congenital septal defects.

Subacute bacterial endocarditis did not develop within three months postoperatively in any patient. Occasionally, in the presence of gross sepsis, some patients showed a slight pyrexia up to 99°F. in the 24 hours after extractions.

Eleven patients with dental sepsis were being treated for subacute bacterial endocarditis.

None of the patients who were pregnant suffered abortion or miscarriage within four weeks of the extractions.

Manchester Royal Infirmary, Manchester, England

A study of dry sockets

R. I. Erickson, D. E. Waite and

R. H. Wilkinson. *Oral Surg., Oral Med. & Oral Path.* 13:1046-1050 Sept. 1960

In an attempt to determine the main cause of localized osteitis, or "dry socket," a group of 96 unselected patients with third molar impactions of varying severity were evaluated before, during and after operation. The subjects consisted of 50 men and 46 women, mostly of college age.

An extensive history was obtained from each patient before the operation. The length and severity of the operation were recorded during the procedure. The type and amount of local anesthesia were held constant for all extractions. Most patients were seen 24 hours after the operation, and then on following days as indicated.

Clot breakdown and loss constituted the basic criteria for the severity of socket complications, since such breakdown and loss almost invariably are connected with the other symptoms of localized osteitis, such as odor, bone exposure, pain, swelling and lymphadenitis.

The amount of clot loss was determined by the amount of firm, healthy clot remaining in the socket after irrigation, as compared to the approximate size of the original defect.

The results bore out the findings of previous studies that the amount of surgical trauma is proportional to the degree of complications. Of the patients in whom more than half the clot had been lost, 60.4 per cent had undergone procedures listed in the most traumatic category.

Another significant finding was that in 51 per cent of the patients in whom clot breakdown occurred, these changes were evident within 24 hours postoperatively.

Generally, granulation tissue became evident in the socket 9.5 days postoperatively, with an over-all range of from 5 to 21 days. This granulation tissue marks the initiation of the healing process and the end of the localized osteitis.

No correlation was found between amount of clot loss and amount of apprehensiveness on the part of the patient, previous or existing infection of the surgical site, length of the operation or carrying out of recommended postoperative instructions.

Postoperative instructions in the oral surgery department at the State University of Iowa consist of the following:

1. On the day of operation, the patient is advised to: (a) keep damp gauge packs in place for 30 minutes with constant, firm pressure; (b) refrain from rinsing the mouth or sucking on the wound; (c) avoid excessive expectoration, exercise and smoking; (d) keep head elevated and rest quietly; (e) apply ice bag for 30-minute intervals to control swelling and (f) take prescribed tablets (containing acetylsalicylic acid, acetophenetidin and codeine phosphate) for pain if needed.

2. On the first postoperative day and throughout the healing period, the patient is advised to: (a) brush teeth after meals and rinse mouth with warm saline solution; (b) adhere to a soft to regular diet; (c) apply external heat (heating pad or hot-water bottle) to face on the same side as that in which the extraction was made, and (d) continue with tablets for pain if needed.

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Therapeutics

Antibody formation after administration of antibiotics of the tetracycline series

F. Patočka, C. John, V. Kubelka, J. Korb and E. Šrajbr. *Časop.lék.česk.* 99:1053-1058 Aug. 19, 1960

The effect of intramuscularly injected tetracycline, chlortetracycline and oxytetracycline on the formation of antibodies was investigated experimentally and clinically at the Microbiologic Institute of the University of Prague, Czechoslovakia.

The experimental animals (rabbits) received antigens of different types intramuscularly, emulsified in a lipid adjuvant simultaneously administered with a suspension containing *Brucella abortus*.

During a test period of 11 days after immunization, the experimental animals received 25 mg. of either tetracycline, chlortetracycline or oxytetracycline daily.

The primary results were as follows:

1. All three tetracyclines produced a statistically significant inhibition of the antibody formation and reduced the allergic reactions to *Br. abortus*.

2. In all experimental animals, the antibody levels remained unchanged, even after the daily doses of the tetracyclines were raised to 40 mg., at least for a period of 10 to 14 days.

3. The inhibitory effects of the tetracyclines on antibody formation were less profound than those of corticotropins and corticoids.

4. The inhibitory effects of the primary immunity response to the tetracyclines were relatively small in the group of rabbits immunized with a corpuscular brucellar antigen, even after daily doses of 40 mg. were administered for 14 days.

The most profound depression of the antibody formation was obtained in the group of rabbits immunized with both brucellar and influenza antigens, after intramuscular injection of daily doses of 10 mg. of the tetracyclines for from 7 to 12 days.

In an additional experiment, the effects of the tetracyclines on the formation of neutralizing antibodies against the herpes simplex virus were investigated. The neutralization index in a mixture of rabbit serums of a group not influenced by the tetracyclines was 1,076, whereas the serums of rabbits which had received one of the tetracyclines, showed a neutralization index of 315.

Clinical investigations showed that all three tetracyclines appeared to be effective against gram-positive and gram-negative bacteria, rickettsia, staphylococci and viruses. Nausea, irritation of the mucous membranes, skin eruptions and localized reactions (glossitis and other oral lesions) were the main side effects observed after administration of the tetracyclines.

Among the three tetracyclines investigated, oxytetracycline appeared to be the most effective antibiotic agent against strains of microorganisms resistant to penicillin. This drug, therefore, should be the antibiotic of choice in the dental or medical treatment of patients sensitive to penicillin.

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Drug terminology and the urgent need for reform

New England J. Med. 263:21-23 July 7, 1960

The nomenclature of drugs long has created confusion. Some of the least glamorous events in medical history are associated with efforts to obtain excessive prices from the use of misleading or special terms for medicinal products. The protection afforded by patent and copyright laws has encouraged enterprising individuals and companies to develop new drugs for financial reward. Deliberate confusion has been engendered by the current system of naming pharmaceutical products.

At present, every drug has at least three names and certain drugs have as many as a dozen names. Every chemical compound is assigned a chemical-scientific name at the time of its creation. If the

product is medicinally useful and is put on the market, the manufacturing firm patents the drug for its own protection and assigns a trade name, which is copyrighted, thus affording further protection. Finally, the producer, in collaboration with the Federal Food and Drug Administration and the Council on Drugs of the American Medical Association, assigns a generic name, which may be used by any interested party.

The chemical name specifically identifies the compound and is useful to a few technically trained persons.

The drug manufacturer claims certain advantages for the use of trade names in addition to their protection of his interest in a drug. The trade name ensures that the practitioner and ultimately his patient will get the drug so designated by the manufacturer. Since the trade named drug is an index of the manufacturer's reliability, he attempts to ensure that his product is the best he can make it.

Much effort is put into making most trade named products pharmaceutically fine and esthetically elegant, factors that often are overlooked by those opposed to trade names. However, trade name protection for the most part is a device to protect the interests of a manufacturer, and, presumably, it increases the cost of drugs to the consumer.

There are, however, distinct disadvantages in the employment of trade names for drugs. The trade name is not official and often is belittling to the intelligence of anyone with scientific training. Frequently, the trade name is a plain nuisance, leading to multiple names for one chemical entity. Thus, there are a dozen trade names for reserpine, six for isoniazid and so on, a practice that is confusing and has no merit other than to increase the profits of the manufacturer who often has made no scientific effort and taken no risk in the development of the product.

Many persons believe that an effective system of generic terminology may be a partial solution. Generic names can be anyone's property and, if properly developed and applied, could clear up

much confusion. One disadvantage of generic names is that their use gives to the pharmacist the decision regarding the brand that will be given to the patient. For most products this usually is satisfactory, but there are exceptions.

Unscrupulous manufacturers would benefit from the widespread use of generic terminology as established at present, and the Food and Drug Administration might find it impossible to check all drugs put on the market by such manufacturers. Nevertheless, if generic terminology is made sensible and uniform, it is by all odds the terminology of choice. The following suggestions therefore are proposed:

1. The generic term must be selected and made available for every new drug before it is put on the market. Generic names should be selected by a National Advisory Committee appointed by the Food and Drug Administration. The terms must be brief and designed with regard for their dignity, visual and oral reception and mnemonic connotations.

2. Once the generic term is adopted, it must represent the highest standards available for that product. These standards must encompass the best technical, chemical and pharmaceutical procedures in manufacturing as well as the highest content of active drug and lowest content of impurities possible.

3. The medical profession should engage in a campaign to urge physicians to give generic names prominence in all medical writing, advertising and usage. Journal editors should join in the campaign.

4. A monthly glossary of generic names and the standards that they represent should be published in leading medical journals and perhaps sent to physicians by the Food and Drug Administration.

5. Inclusion of the manufacturer's name after the generic name would in the end give him equal protection and even more favorable recognition than the present undesirable trade name practice.

Committee on Advertising, 8 Fenway, Boston 15, Mass.

Oncology

Exfoliative cytology for detection of early mouth cancer

Henry C. Sandler, S. Sigmund Stahl, Lester R. Cahn and H. Robert Freund.
Oral Surg., Oral Med. & Oral Path. 13:994-1009
 Aug. 1960

From 1956 to 1959, oral examination of 16,103 hospitalized war veterans, primarily men over 40 years old, revealed 452 abnormalities of the oral mucosa in 412 patients. Each lesion, no matter how insignificant, was scraped for cytologic study. The entire surface of the abnormal mucosa was firmly scraped with the edge of a wooden tongue depressor. The material removed was spread on a microscopic slide, immediately fixed in 95 per cent alcohol, and stained by a modified Papanicolaou stain. Tissue specimens for biopsy were obtained from 239 of these lesions. The diagnosis of cancer was confirmed independently by both cytologic examination and biopsy in 131 patients. In seven patients, carcinoma was not suspected from the appearance of the lesion, and in an additional seven patients more than one biopsy was required before the diagnosis could be confirmed. Cytologic methods failed in 20 instances, there being 15 false negative and 5 false positive findings.

The following conclusions were reached:

1. Cytologic examination is a reliable diagnostic procedure for the detection of carcinoma of the mouth.
2. Cytologic study can reveal the presence of early (intraepithelial) oral cancer when the clinical appearance is so innocent that biopsy is not warranted.
3. Cytologic examination supplements biopsy, for often the former can provide evidence of cancer when the biopsy specimen shows no evidence of malignancy.

4. Cytologic examination simplifies the early detection of recurrence of cancer in treated patients.

Superficial lesions can be studied by exfoliative cytology methods with ease, often without the patient's knowing that anything is being done, and without the patient's experiencing the discomfort that would accompany multiple biopsies.

Oral cancer usually is painless in its incipiency. Unless it develops in an easily viewed area, it is likely to remain unnoticed, chiefly because of faulty oral examination procedures. Education in correct oral examination and cytologic technic will facilitate the early discovery of oral cancer.

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Kaposi's sarcoma

A. Nordenskjöld. *Svensk. Läk. Tidn.*
 59:2707-2711 Sept. 1960

Multiple idiopathic hemorrhagic sarcoma (Kaposi's sarcoma) is a mesodermal tumor, characterized by the appearance of multiple bluish-red or dark-brown nodules or plaques, predominantly and spontaneously occurring on the skin of the extremities, but often secondarily involving the facial skin and the oral mucosa.

In the early (granulomatous) stage of the disease, the tumor formation is not evident. In the later stages, however, the histopathologic picture of Kaposi's tumor resembles that of angiosarcoma or fibrosarcoma, revealing that malignant changes have taken place.

Extravasated erythrocytes and hemosiderin granules are constant but sometimes inconspicuous features of the sarcoma's later stage.

Kaposi's sarcoma occurs in approximately 2 per cent of the population of Russian, Polish and Italian ancestry. The tumor becomes clinically evident mainly in men between 50 and 70 years old.

Treatment of any type is usually unsatisfactory. The patient should be referred to a tumor center to receive external irradiation of the involved areas. Isolated, symptom-producing metastases should be removed surgically whenever feasible.

Skeppsbron 44, Stockholm, Sweden

Current concepts of leukoplakia

C. A. Waldron and W. G. Shafer. *Internat.D.J.*
10:350-367 Sept. 1960

A review of recent publications on leukoplakia shows that there is considerable confusion regarding the use of this term. To many authors, "leukoplakia" is a clinical term used to designate a white patch on the oral mucosa. Others utilize the term "leukoplakia" for a microscopic diagnosis and require that the lesion show certain definite histologic features, principally dyskeratosis. Most workers consider leukoplakia to be a premalignant lesion, although the estimated frequency of malignant transformation varies from a small percentage to nearly 100 per cent.

Although leukoplakic patches may be found anywhere in the oral cavity, certain sites of predilection have been noted. Renstrup (1958) reports that the buccal mucosa and commissures are most frequently involved, followed in descending order by the alveolar mucosa, tongue, lip, hard and soft palate, floor of the mouth and gingiva. Multiple areas of involvement are common. The extent of involvement may vary from small, well-localized irregular patches to diffuse lesions covering a considerable portion of the oral mucosa.

Clinically, patches of leukoplakia may vary from a nonpalpable, faintly translucent white area to thick, fissured, papillomatous, indurated lesions. The surface of the lesion often is finely wrinkled or shriveled in appearance and may feel rough on palpation. The lesions are white, gray or yellowish-white in color, but with heavy use of tobacco may assume a brownish-yellow color.

Most authorities, regardless of their criteria for microscopic diagnosis of leukoplakia, agree that this lesion represents a dysplasia of the surface epithelium.

The cause of leukoplakia has been attributed to many factors, including: tobacco, alcohol, oral

sepsis, local irritation, syphilis, vitamin deficiency, endocrine disturbances, galvanism and actinic radiation in the instance of leukoplakia of the lips.

It is impossible to determine the incidence of leukoplakia that will undergo malignant transformation, or to determine with any degree of accuracy which instances of leukoplakia are potentially dangerous.

The treatment of leukoplakia has included such modalities as the administration of vitamin A, vitamin B complex, estrogens, roentgenotherapy, fulguration and surgical excision.

There are few well-documented clinicopathologic studies relating to the course and prognosis of leukoplakia.

There appears to be considerable justification for the suggestion that the term "leukoplakia" should be used only for the clinical designation of a white plaque on the oral mucosa, and that terms such as hyperkeratosis, acanthosis or dyskeratosis be used for the microscopic diagnosis of these lesions. This would eliminate misunderstanding in the variation in usage of the term "leukoplakia" and would contribute to better patient management.

Emory University School of Dentistry, Atlanta, Ga.

Nonfamilial and nonhereditary craniofacial dysostosis: a variant of Crouzon's disease

Fred H. Dunn. *Am.J.Roentg.* 84:472-478 Sept. 1960

In the reported case of nonfamilial and nonhereditary craniofacial dysostosis (Crouzon's disease) in a Negro male child, it was noted at birth that the infant had a cleft palate and skull defects. At seven months of age he was unable to sit alone and had no teeth. His teeth began to appear after one year of age; he started walking at 13 months and talked at 13 to 14 months, although his speech was not clear. When he was readmitted to Michael Reese Hospital in 1959 for repair of his cleft palate, he was five years old.

On physical examination, the main findings were limited to the head: birdlike facies; wide cleft palate with uvula absent; large, nonbulging

triangular cranial defect over the midportion of the frontal region with the apex pointed toward the nasion and with extensions of the defect into the parietal regions; ears set low with normal external auditory canals and tympanic membranes; nose wide and large for the face; hypertelorism; small eyes with slight antimongoloid tilt; exophthalmus with no strabismus; no exophthalmus; eyebrows sparse over the frontal bossings; eyelids normal; fundi normal, and mandibular and maxillary regions underdeveloped.

Laboratory findings revealed normal blood cell count, urinalysis, blood urea nitrogen and serum electrolytes.

At five years of age, roentgenograms showed the skull to be distinctly scaphoid. There was complete synostosis of the sagittal suture. The coronal and lamboidal sutures could not be identified. Over the midportion of the frontal area was a large zone of nonossification, roughly triangular in shape with the apex directed toward the nose. There were a number of wormian bones in the left parietal area. Hypertelorism was pronounced. A 4 mm. parietal foramen was present on the left and a 1 mm. one on the right. The mandible was hypoplastic and in the frontal view appeared to have a V-shape rather than the normal U-shape. The maxillas and their sinuses were hypoplastic. Roentgenograms of the lumbodorsal spine revealed a spina bifida occulta extending from the tenth thoracic vertebra to the sacrum. Roentgenograms of the extremities showed definite delay in bone maturation.

The family history was negative, with six normal siblings.

Michael Reese Hospital and Medical Center, Chicago 16, Ill.

Comparative pathoanatomic study of the dentition in 425 dog skulls

Max Mooser. *Schweiz. Arch. Tierh.* 100:209-223 April 1960

Any study designed to compare pathoanatomically the teeth of an animal with those of man must be based not only on the fundamental differences (especially manifested in the hinge-like movements of the temporomandibular joint in man) but also on the observation of the simi-

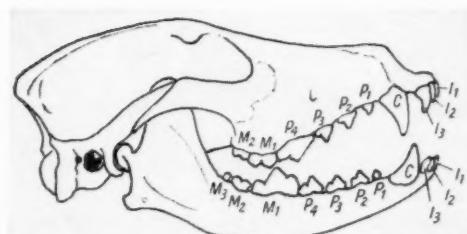


Figure 1 Normal dentition of a domesticated dog

larities existing in the normal and abnormal dentition.

Pathologic conditions such as anomalies in the number of teeth (supernumerary or congenitally missing teeth), occlusal defects, enamel hypoplasia, dental caries and periodontal disease were investigated in 425 dog skulls at the Dental Institute of the University of Bern, Switzerland.

Anomalies in the number of teeth occur in dogs almost as frequently as in man. The most frequently missing human tooth is the third molar, whereas in the dog the second premolar is usually the congenitally missing tooth. In the 425 dog skulls examined, there were 167 teeth congenitally missing (5 incisors, 2 canines, 117 premolars and 43 molars). There were 39 supernumerary teeth (2 incisors, 22 premolars and 15 molars).

Occlusal defects were found in 394 skulls and could be classified as follows: (1) overbite, called "shear" bite, in 161 skulls (Fig. 2); (2) open bite, "tong" bite, in 166 skulls (Fig. 3), and (3) edge-to-edge bite, "reversed cutting" bite, in 67 skulls (Fig. 4).

The incidence of dental caries in dogs is extremely low. Carious lesions were detected in

Figure 2 "Shear" bite

Figure 3 "Tong" bite

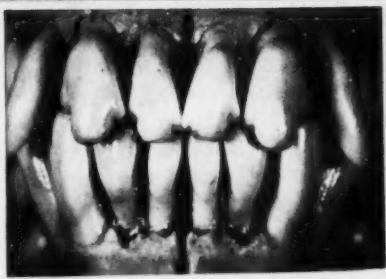
Figure 4 "Reversed cutting" bite

Figure 5 Carious lesions

Figure 6 Enamel hypoplasia

Figure 7 Calculus accumulation

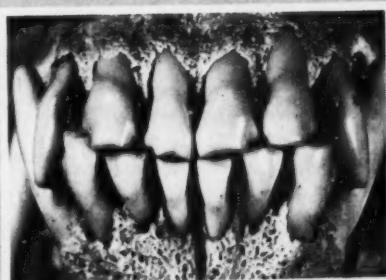
Figure 8 Periodontitis



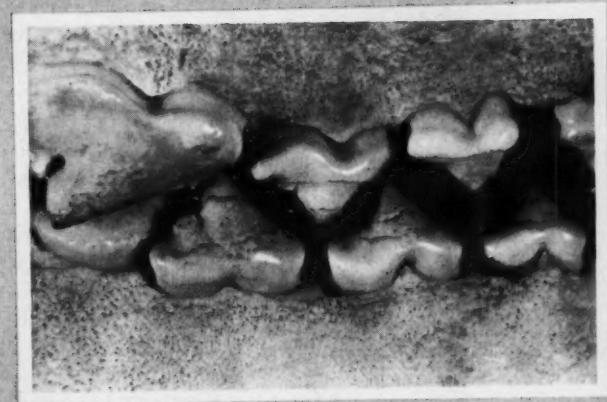
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5



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4



8



7

6

only five molars and one premolar (Fig. 5). This is less than 0.5 per cent.

Hypoplasia of the enamel was found in two skulls (Fig. 6). In contrast to enamel hypoplasia in human teeth, which is the result of a pre-eruptive disturbance (hypocalcification) of enamel prism formation, the enamel hypoplasia in dogs occurs as a sequela to canine distemper.

Periodontal disease (mainly periodontitis and occasionally periodontosis) seems to occur almost as often in dogs as in man. Inflammatory reactions of the periodontal tissues to food impaction and calculus accumulation were found in 44 skulls (13.5 per cent). As in recent man, disturbances (infectious or inflammatory) of the periodontal membrane, the gingiva and the alveolar bone (Fig. 7 and 8) in dogs must be considered as morbid processes resulting from domestication.

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**Sicca syndrome (Sjögren's syndrome):
a study of 16 cases**

Charles W. Denko and Delbert M. Bergenstal.
A.M.A. Arch. Int. Med. 105:848-858 June 1960

The symptom complex associated with abnormal physiologic changes in patients with hypofunction of the lachrymal, nasal and salivary glands has been termed variously as sicca syndrome, Sjögren's syndrome, keratoconjunctivitis sicca or filamentary keratitis.

In 1933, Henrick Sjögren, a Swedish ophthalmologist, described 19 patients with this syndrome, some of them with an associated polyarthritis and swelling of the parotid glands.

The clinical features and laboratory findings in 16 patients (2 men and 14 women, between the ages of 32 and 62 years), diagnosed as having Sjögren's syndrome are presented to aid in identifying this symptom complex as a clinical entity.

In all these patients, observed at the Arthritis Clinic of the University of Chicago, the main clinical features included hypofunction of the lacrimal and parotid glands with a chronic polyarthritis and general symptoms such as fatigue.

Eight of the patients had symptoms of classical, definite, probable or possible rheumatoid arthritis, whereas no diagnosis of rheumatoid arthritis

could be made in the other eight patients. Extreme dryness of the mouth occurred in all 16 patients.

The most profound laboratory finding was the presence of dysproteinosis manifested by abnormal levels of serum gamma globulin, C-reactive protein and cryoglobulin.

Biopsy specimens demonstrated the typical infiltration of the parotid glands with lymphocytes and an increased formation of connective tissue.

The most satisfactory treatment consisted in a combined hormonal therapy, prednisone and desiccated thyroid extract. The usual dose was from 5 to 7.5 mg. prednisone daily and from 60 to 120 mg. thyroid extract daily. The benefits obtained by the use of steroids may be interpreted as the result of their anti-inflammatory effect on the involved glands as well as on the inflamed joints.

The etiology of Sjögren's syndrome, however, remains unknown but a specific sensitivity mechanism or a hyper-reactivity is suggested because of the dysproteinosis and multisystemic involvement associated with the syndrome.

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Skin and mucous membrane

R. M. B. MacKenna. *Lancet* No. 7141:55-59
July 9, 1960

Mucosa generally is regarded as a wonderfully adapted lining of many cavities; unlike the skin, it is relatively impervious to maceration by physiological fluids, and it excretes or secretes mucus. In the mouth and certain areas of the nasal cavity, the mucous membrane histologically shows much resemblance to the epidermis. It is reasonable to postulate that continual chemical processes occur in many mucosal areas which are possibly vital for the life of the individual and certainly vital for the health of the mucosa.

Shallow, in a classic paper (1958), described the cutaneous maladies in which the mouth may be involved. Among these maladies are lichen planus and psoriasis, the etiologies of which are unknown. In about 1 in 300 instances of pityriasis rosea, the oral mucosa on the cheeks and sometimes on the palate may be involved.

So-called skin diseases in which oral lesions may be found are: epidermolysis bullosa, keratosis follicularis, pityriasis rubra pilaris, pityriasis lichenoides et varioliformis acuta, lichen sclerosus et atrophicus, urticaria pigmentosa, acanthosis nigricans, erythema multiforme, Reiter's disease syndrome, aphthosis (including Behcet's disease) and pemphigus.

Touraine (1955) asserted that all forms of aphthous ulceration, from the simplest to periadenitis mucosa necrotica recurrens and Behcet's disease, are variants of the same disorder. If he is correct, the virus must be present in a large sample of the population. If Touraine's views are correct, aphthosis would seem to be an interesting field for immunologists. Like herpes, aphthosis is a virus disease attacking both skin and mucosa; but, unlike the virus of herpes zoster, aphthosis virus has no special affinity for nerve tissue.

The bibliography contains 57 references.

St. Bartholomew's Hospital, London E.C.1,
England

The significance of extreme mandibular movements

R. G. Every. *Lancet* No. 7140:37-39 July 2, 1960

Most mammals sharpen their teeth. This ensures that the teeth are effective tools and weapons. In the civilized human, the instinctive motion producing sharpening by attrition has become culturally unacceptable, and therefore it is repressed soon after birth. Nevertheless, it occurs during sleep. Mandibular movements during sleep achieve the sharpening, an apparently deep physiological need, in spite of any inhibition which may have been imposed on its overt conscious acceptance.

Such mandibular activity during sleep, not being limited by pain, is apt to exceed the useful range of sharpening. Unilateral forward dislocation of the temporomandibular joint with occlusion of the teeth becomes the abnormal, acutely traumatic achievement of a cultural inhibition of a powerful instinct.

The evidence which led to the hypothesis that such extreme mandibular movements and dislocations occur has been provided by a study of the

psychopathology of repression and intraoral and extraoral signs and symptoms. This work has been in progress for 18 years; details of the large amount of material collected will be published in later papers.

The principal physical evidence has been the correlation of facial pain with the markings on the teeth. Other evidence has concerned the relation between feelings and emotions and salivary changes as observed clinically. In addition there are the effects of inflammation, ulceration and scarring on the oral tissues, and the effects on the oral tissues of the various types of pressures, as seen from the markings on teeth of attrition, abrasion, fractures and bruising.

There is a powerful aggressive instinct to sharpen teeth, and it is still present, in varying degrees, in all members of civilized communities. Four times as many women as men suffer from the syndrome of extreme mandibular movements.

7 Adam Street, Adelphi, London W.C.2, England

Bruxism and chronic headache

Louis Moss. *Lancet* No. 7147:435 Aug. 20, 1960

The author has long believed that most chronic headaches without apparent cause probably are due to the formation of myalgic spots in the trapezius muscle and the deep muscles of the neck, causing, by local irritation of sensory nerves, referred pain to various parts of the head (Moss, 1944).

In many long-standing conditions, secondary myalgic spots are found in the temporal and occipitofrontalis muscles—acutely tender on pressure—that resolve without local treatment once the primary spots in the neck have been treated successfully.

Often, especially when the rheumatic process has spread and involved the insertion of the trapezius muscle in its outer third at the occiput, these spots are found in the masseter muscles. Such spots may be activated by a number of causes such as trauma and dental and throat operations when the lower jaw has to be kept open often for a long period.

These myalgic spots would account for bruxism, but this condition is secondary to rheumatism in

the neck muscles. Teeth clenching is a common habit in these days of tension and stress and should not give rise to any untoward symptoms in the absence of myalgic spots. The wearing of a special dental "relaxation plate" (Berlin and Dessner, *Lancet*, Aug. 6, 1960) is rather a grim alternative to the simple methods that can be adopted to relieve the myalgic spots.

7 Adam Street, Adelphi, London W.C.2, England

Dental findings in cerebral palsy

Jason C. Siegel. *J. Den. Children* 27:233-238 Sept. 1960

Although the dental treatment of children with cerebral palsy has become a routine procedure in many clinics, little study has been reported on the possible diagnostic value of the appearance of the dentition or the supporting tissues.

Sixty-five children with cerebral palsy and 65 normal children were examined orally. The children ranged in age from 2 to 12 years, and were divided into two groups, from 2 to 5 years old and from 6 to 12 years old. Factors studied were the palatal arch, tooth attrition, incidence of caries, eruption of teeth, decalcification and hypoplasia and dental anomalies.

There were no significant differences among the children with cerebral palsy and the normal children in regard to the incidence of high arch palate, caries, time of tooth eruption or dental anomalies.

Not a single instance of tooth attrition was observed in the normal children, but definite signs of attrition were found in 18 (27.8 per cent) of the 65 children with cerebral palsy; in 14 of the 18 children, attrition was severe. The degree of attrition depended on the severity of the cerebral palsy; attrition was not peculiar to athetoid children, and was not limited to any age group. Hypertonicity of the masticatory muscles and the erratic action of the facial muscles were the causes of attrition.

Six of the 65 children in the cerebral palsy group showed decalcification or hypoplasia, whereas only 3 of the 65 children in the control group showed evidence of hypoplasia.

Decalcification and hypoplasia are the most important diagnostic aids in determining whether brain insult occurred. If the decalcified or hypoplastic areas are found on the deciduous anterior teeth in children with cerebral palsy, it could mean that the brain damage was prenatal; this information could aid in substantiating the known medical history.

207 Waterman Street, Providence 3, R.I.

Asymptomatic enlargement of the parotid glands

Steven Borsanyi and Cyrus L. Blanchard. *J.A.M.A.* 174:20-23 Sept. 3, 1960

Painless enlargement of the parotid glands was studied in 21 patients in whom this condition was associated with the clinical signs of hepatic cirrhosis and a long history of alcoholism. In no patient was any other salivary gland involved. Sialography, parotid biopsy and measurement of the resting rate of salivary secretion were performed in each patient. The ages of patients in this series ranged from 28 to 68 years; there were 15 men and 6 women in the group.

A differential diagnosis is valuable in ruling out specific parotid diseases and in directing attention to a certain group of conditions including latent diabetes, liver cirrhosis and pre-cirrhotic changes.

Nutritional deficiency states and endocrine disorders, or both, are possible factors in asymptomatic parotid enlargement. The incidence of parotid swelling in Laennec's cirrhosis is relatively high. It may also affect alcoholic persons without manifesting signs of cirrhosis. Parotid swelling in Laennec's cirrhosis does not cause pain, temperature elevation or dryness of the mouth. The swelling of the parotid glands results in a trapezoid appearance of the face. The enlargement of the parotid gland usually is bilateral and symmetrical. Stensen's duct is permeable and its opening is normal.

Histologic changes of the parotid gland vary little in the underlying diseases and are not definitely characteristic of such diseases.

University of Maryland School of Medicine, Baltimore, Md.

Appearance of *Klebsiellae* in the mouth and the upper respiratory tract

L. Dubay. *Časop.lék.česk.* 49:449-453
April 8, 1960

In 238 patients, treated for respiratory disorders, short, gram-negative, aerobic rod-shaped microorganisms were found in bacteriologic examinations of nasal and oral swabs, in the saliva and the sputum. These microorganisms were later identified by capsular antigens in agar, broth and gelatin cultures as *Klebsiellae* of various types.

Klebsiella type 1 was found in 18 patients; type 3, in 33; type 4, in 163; type 6, in 5; type 7, in 5; combinations of type 5 and type 6, in 2; and other unspecific types of *Klebsiella* not belonging to the bacteriologically accepted types 1 to 14, in 10 patients.

During examinations of the oral cavity and the upper respiratory tract in 1,000 patients free from diagnosed oral or respiratory disease, *Klebsiella* type 1 was detected in 0.4 per cent, and type 5, in 0.1 per cent. A significantly higher percentage of *Klebsiella* was found in 30 patients with diagnosed dental, oral or respiratory diseases.

Based on these findings, the following conclusions could be made:

1. In healthy persons, *Klebsiella* may occur sporadically and in small numbers in the oral cavity and the upper respiratory tract without producing pathological changes.

2. In patients with oral or respiratory diseases, especially in those who have an otorhinolaryngologic history, *Klebsiella* types 3 and 4 occur in sufficient numbers to permit suggestion of a possible causative relationship.

3. The presence of *Klebsiella* in patients with infections in the oral cavity or the upper respiratory tract in whom no other causative or suspicious microorganism has been detected, should arouse the interest of dentists, otorhinolaryngolo-

gists and microbiologists to investigate the probable pathologic significance of these microorganisms which belong to the usually pathogenic class of *Schizomyctes*.

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**A study of oral strains
of *Lactobacillus* spp.: the effect of diet
upon indigenous and implanted strains**

J. L. Featherstone. *Austral.D.J.* 5:149-156
June 1960

Under ordinary conditions, there usually is resistance to any disturbance of the body's normal microbial flora. Thus, attempts to introduce new generic components into the permanent microbiota of the mouth generally have failed.

This investigation was undertaken to determine (1) whether certain species of lactobacillus can be implanted and become permanent constituents of the oral flora, and (2) whether a temporary change of diet can influence the numbers of indigenous and implanted species of lactobacillus. Because of the nature of the investigation, the author used himself as an experimental subject.

The mouth was examined bacteriologically. Then a concentrated suspension of a mixture of species of lactobacillus, such as have been found commonly in the human mouth, was prepared by mixing 0.5 ml. quantities of 24-hour cultures of 11 species of lactobacillus. On each of 15 occasions during one week the mouth was rinsed with the mixture for three minutes. Customary food habits were practiced between rinses, and teeth were brushed twice daily.

Differential lactobacillus counts were made on three successive days after the last rinse, and then at weekly intervals for six weeks. Thereafter, an interval of two months elapsed before further counts were made. Five months after the rinses, the carbohydrate content of the diet was increased for one week, after which a customary diet was resumed for one week. Subsequently, the fat content of the diet was increased for one week, after which the salt intake was increased for four days. Lactobacillus counts were made before and after each change of diet and thereafter about once a month for four months.

At the end of this period, the quantity of carbo-

hydrates in the diet again was increased for a period of six months. After a resumption of the customary diet for two weeks, a diet containing a very large proportion of carbohydrates was consumed for seven days.

The first increase in carbohydrates in the diet brought about an increase in the number of organisms of the strongly acidogenic species, *Lactobacillus plantarum*; the second, in the number of the strongly acidogenic *L.casei* var. *alactosus*, and the third, no significant increase in any species.

An increase in fat in the diet brought about an increase in the number of organisms of the weakly acidogenic species, *L.acidophilus*.

An increase in the salt in the diet still further augmented the numbers of *L.acidophilus*.

The total lactobacillus count remained below 800 organisms per milliliter of saliva for the first six months, except for one count of 6,996 organisms about two weeks after the rinsing. On no occasion did the total lactobacillus count exceed 15,000 organisms per milliliter.

Nineteen to 20 months after the rinsing of the species of lactobacillus, those isolated were *L.casei* var. *casei* (Group 2), *L.casei* var. *alactosus* (Group 6) and *L.sp.* ("A"). These strains present in the rinses were not regarded as normal inhabitants of the subject's mouth and therefore were assumed to have been implanted during the experiment. However, doubt is expressed as regards *L.casei* var. *alactosus* (Group 6) because of infrequent isolation.

High counts of certain species of lactobacillus may be an indication of a diet containing excessive quantities of certain components.

Because during the experiment there was no appreciable increase in the number of carious lesions in the subject's mouth, it is considered that the teeth played no part in the variation of the oral flora.

2 Chalmers Street, Sydney, Australia

Variation of *Staphylococcus pyogenes* var. *albus* and *aureus*

Hobart A. Reimann. *A.M.A. Arch. Int. Med.* 106:341-344 Sept. 1960

Staphylococcus now exceeds other gram-positive cocci as an important cause of disease, yet basic information on its ecology, pathogenesis and immune relationship is incomplete. Intensive studies of its dissociative pattern have not been carried out to demonstrate the contrast with the patterns of *Pneumococcus* and *Streptococcus* showing main colonial variant forms known as mucoid, smooth and rough types.

The present study demonstrated that complex dissociative patterns of a staphylococcal strain exist and that nine variants could be established by the specific effect of phage type 42D. The mucoid and smooth white forms, however, indicated their uniform pattern by reverting to specific variants. Capsulated mucoid forms of the yellow (*aureus*) and white (*albus*) staphylococci were no more virulent in experimental animals than the smooth and rough forms or other variants. Dissociation may occur undetected *in vivo*, but in cultures obtained from patients, the microorganisms usually form the familiar smooth type colonies of either *Staph. pyogenes* var. *albus* or *aureus*.

Variation appeared under a number of circumstances but did not determine virulence, ability to survive in adverse environment or the acquisition of resistance to penicillin and other antibiotics.

Variation, best observed in aging cultures, seemed to occur by chance and could not be enforced deliberately. The smooth white variant of staphylococcus is identical with *Staph. pyogenes* var. *albus* and is, therefore, not a separate species of this genus.

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Education

**The new dental school
in Caracas, Venezuela**

Ernesto Cohn. *Deut. Stomat.* 10:463-464
June 1960

During the last decade, dental education in most Latin American countries has reached a standard almost comparable to that in the West European countries. Unfortunately, this cannot be claimed for dental research. Only a few of the Latin American countries possess adequate economic means and a well-trained staff of scientists to undertake successfully dental research studies.

Among the Latin American countries, Venezuela, Mexico and Argentina are outstanding in dental research. The three Venezuelan dental schools (Faculty of Dentistry of the Central University of Venezuela in Caracas; Faculty of Dentistry of the University of the Andes in Merida, and Faculty of Odontology of the National University in Maracaibo) have been engaged in solving many research problems, and the work performed in these three schools has been acknowledged internationally.

In Caracas, a gigantic university campus has been created recently, which is far superior to the facilities offered by the famous European universities. The Venezuelan university campus can be compared only with that of the National Autonomic University of Mexico in Mexico City.

In 1959, the dental school in Caracas was thoroughly reorganized, and housed in one of the largest buildings on the campus. Modern classrooms, clinics, laboratories and libraries provide facilities for 300 dental students to receive training in theoretical and clinical education as well as in dental research. At present, the school's faculty consists of 75 professors who have been educated in the United States, West Europe and South America. The new dental school, undoubtedly, will elevate the Venezuelan dental

profession to a higher social and economic level. As in most Latin American countries, dental education in Venezuela requires a five year study. The dental school is independent from the medical school but cooperates with this and other scientific schools of the university in providing undergraduate and graduate courses. After a final examination and acceptance of a dissertation, the diploma of *Dr. dent.* (Doctor in Dentistry) is obtainable. The new curriculum includes courses in the liberal arts (humanities) which are compulsory. The school's dental clinic is equipped with 200 modern dental chairs and 25 operating tables at the clinic's oral surgical department.

Unfortunately, the curriculum does not include courses on public health dentistry and dental history. The second topic would increase tremendously the interest in dentistry because of the many traces of pre-Columbian dentistry to be found in Venezuela, whereas public health dentistry is urgently needed to decrease the high incidence of dental caries by studies on caries-preventive methods.

Otherwise, the new dental curriculum has been designed according to the pattern of dental education in the United States, including courses and demonstrations by television.

The dental school frequently exchanges members of its faculty with those of other Latin American dental schools.

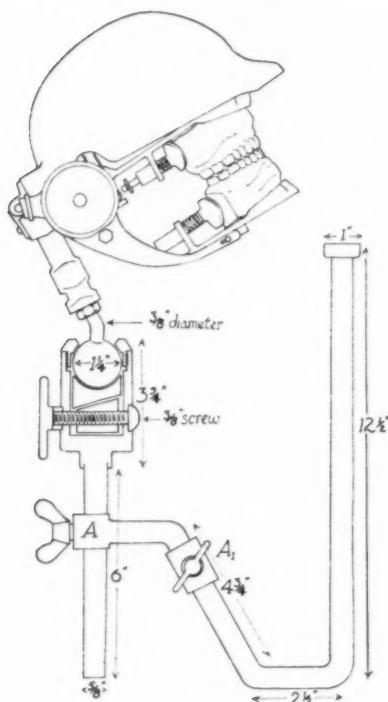
8 Poniente 112-3, Puebla de Zaragoza, Mexico

Pre-clinical teaching—the phantom head

G. S. Beagrie. *D. Practitioner* 10:246-247
July 1960

Until recently the phantom heads used in the Edinburgh Dental School to train dental students in operative procedures and instrumentation were of the conventional hinge type which are in common use in dental schools in Great Britain and the United States. A disadvantage of the hinge type of phantom head is that a patient's movements cannot be duplicated entirely; consequently, some oral hygiene technics have to be modified on the patient, and this is not satisfactory.

A hinge limits the head movements to one



Scale drawing showing the construction of the ball-and-socket joint. The alternative settings A and A₁ in the support bracket represent the movements of the dental chair.

plane; it does not allow any tilting or side movement. The rotation which the skull makes with the neck closely resembles that found in the ball-and-socket joint.

In a new phantom head used for preclinical teaching, the one-plane hinge has been replaced by a ball-and-clamp type joint (see illustration). The ball of the joint must be of sufficient diameter to supply adequate frictional grip when the clamp is closed on it. The diameter of the ball shown is 1 1/4 inches. The rod attaching the head to the ball must be kept within certain dimensions. A rod with a diameter of 5/16 inch is used; the range of head movements would be restricted by a thicker rod. The strength of the junction would be jeopardized by a thinner rod.

Two fixed positions—A in the vertical plane and A₁ at 45 degrees (see illustration)—have been incorporated in the support bracket for the phan-

tom head to duplicate the range of movements provided by the dental chair.

The modifications in the phantom head, along with the dual positioning in the bench support bracket, provide the instructor and the student with a manikin which can reproduce the positions of a patient in a dental chair.

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Attitudes of dental students toward specialization and research

Enrico L. Quarantelli. *J. Am. Col. Den.* 27:101-107 June 1960

To obtain a picture of aspects of the career line as perceived by the dental student, the author interviewed 202 dental students to obtain information regarding their attitudes toward specialization and research.

Most entering dental students, like most entering medical students, have little knowledge of specialization. Such knowledge is obtained rapidly, however, and sophomore dental students have a definite familiarity with the range and possibilities in the different specialties.

Prior to their entrance into dental school, only 12 per cent of the respondents had thought favorably of specializing; yet, 44 per cent of the respondents advanced reasons why they thought it would be desirable to become a specialist.

There is a discrepancy between the apparent desirability of specializing and an actual intent to do so. Only 16 per cent of the respondents definitely intended to specialize. Another 36 per cent were as yet uncertain whether they were going to attempt to specialize. Forty-eight per cent definitely had decided not to specialize.

Students with a dental family background were no more likely than other students to intend to specialize.

Much of the pressure against commitment to specialization by those interested in it stemmed from the additional schooling required; this is the major reason cited by 62 per cent of the respondents who gave reasons against specializing.

Nearly two thirds of the 64 per cent of the respondents who gave reasons for specializing cited some aspect of the specialty work itself.

Somewhat less than half, or 44 per cent, noted the additional financial rewards of specialization. One in ten observed that a dental specialty is closer to medicine than is general dentistry.

Only 1.2 per cent of the respondents aspired to be a dental school teacher, and only 0.6 per cent intended to become a dental researcher. Although some students grasp the importance of research and are intrigued by its place in dentistry, practically none visualize themselves as undertaking it.

Another way in which the negative attitude of students toward dental research manifests itself is in the expressed evaluation of the science teachers. Nearly 75 per cent of the respondents asserted that their science teachers were not good teachers.

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Postgraduate dental education in Czechoslovakia

J. Kubin. *Schweiz. Mschr. Zahnhk.* 70:824-825
Sept. 1960

The many significant advances of the last two decades in all fields of science, including dentistry and medicine, have made the dentists in Czechoslovakia aware that dental practitioners should participate in an extensive program of advanced dental education. Barrot, a French odontostomatologist, emphasized that dentistry has made greater progress in the period between 1925 and 1959 than during the time from antiquity to 1925.

Dentists who practice in smaller communities and are unable to attend postgraduate courses and those who show no interest in advanced education gradually fall behind in scientific knowledge and clinical experience within five years.

Five years ago, the Dental School of the University of Brno initiated a postgraduate program which combines successfully scientific theory with practical experience. There are two forms of courses available to practicing dentists. The first, a three week course, is designed to refresh knowledge in seven specific fields of dentistry: public dental health, oral pathology, oral surgery, orthodontics, pedodontics, periodontics and prosthodontics. This course is repeated annually. The second, a five month course, is designed for dentists who want to practice in the fields of the four dental specialties accepted by the Czechoslovakian Dental Association, that is, oral surgery, orthodontics, pedodontics (including school dental service), and prosthodontics.

Members of the faculty of the Dental School have lectured during these five years to about 1,000 dentists. The topics taught included also human anatomy, bacteriology, biochemistry and pharmacology.

At present, the Dental School of the University of Brno is a part of the Medical School, but it is administratively independent and has its own faculty.

Thanks to the postgraduate dental education, the professional standard of the Czechoslovakian dentists is higher than that of the surrounding countries.

Rybкова 9, Brno, Czechoslovakia

Case reports

Unusual foreign body of the floor of the mouth

Sidney S. Spatz, Stuart N. Kline, Harold J. Zubrow and Melvin Fader.
Alpha Omega 53:2:27-30 Sept. 1960

A 70 year old man was admitted to Montefiore Hospital with the chief complaint of pain, swelling of his tongue and inability to swallow. The patient said that for the past month he had experienced bilateral pain in the temporomandibular joint which radiated into the posterior portion of his neck. He reported sustaining a loss of 30 pounds in weight, and his diet at this time consisted chiefly of soft foods. During the past five days the left lateral margin of his tongue had become enlarged to the extent that only liquids could be ingested. The patient's medical history was noncontributory. Five years previously the patient had been struck by an automobile and had suffered a fractured ankle. The patient drank beer occasionally, and had smoked a pipe for the past 52 years.

The patient's speech was slurred. Two stony but tender nodes were palpable in the left submaxillary triangle. The temporomandibular joint was not tender to palpation. The left anterior third of the tongue was grossly enlarged, indurated and inflamed but without ulceration. The tip of the tongue could not be elevated or moved laterally and was tender, but the floor of the mouth in this region was nontender, hard and unyielding. The posterior pharyngeal wall appeared to be displaced anteriorly to such an extent that it was in approximation with the uvula.

A tentative diagnosis of carcinoma of the tongue was established. The other disease states considered were tuberculosis, fungus disease, granulomatous disease, foreign body response, and nonspecific infection. The routine laboratory studies proved to be within normal limits. Periapical and occlusal films of the patient's dentition and

oral cavity were ordered; only the periapical views were secured and these were negative.

A biopsy specimen was taken from the left lateral margin of the tongue, the incision liberating a copious amount of pus. The laboratory reported an acute purulent abscess formation. *Alpha streptococcus* was the microorganism isolated and when it was found to be sensitive to penicillin, antibiotic therapy was instituted.

The previously omitted occlusal roentgenograms were taken. From these the diagnosis of foreign body in the floor of the mouth, with secondary infection, was made.

The foreign body was localized, utilizing local anesthesia, two no. 23 gauge needles and roentgenography. The foreign body, identified as a pipe stem about 1.5 inch long, was situated in an oblique position deep within the floor of the mouth, between the hyoglossus and genioglossus muscles on the left side and resting on the right mylohyoid muscle.

Under general anesthesia an operation was performed and the pipe stem dissected free from the floor of the mouth. Recovery was rapid and uneventful. The patient, when confronted with the pipe stem, recalled that after the accident five years previously his pipe could not be found.

The inadvertent omission of occlusal roentgenograms stresses the necessity for a complete roentgenographic survey when dealing with problems of this nature.

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Congenital deficiency of proaccelerin (Owren's disease): report of case

F. Gobbi, E. Ascari and U. Barbieri.
Panminerva med. 2:273-279 June 1960

Congenital deficiency of proaccelerin (labile factor, factor V or Ac globulin) has been known since 1947, when Owren used the term "parahemophilia" to describe a severe disorder of the blood characterized by deficiency of a factor which in healthy persons accelerates the conversion of prothrombin to thrombin.

Since 1947, case reports on 20 families whose members were affected by Owren's disease have appeared in the Italian medical or dental literature. The disease affects both sexes and is asso-

ciated with a genetic mechanism which still is undetermined.

Some investigators assumed that the hereditary transmission of the disease is due to a recessive gene and that heterozygotic persons exhibit a partial deficiency of proaccelerin even in the absence of other clinical symptoms.

A 25 year old man was examined at the Institute of Medical Pathology of the University of Modena, Italy.

According to the patient's history, the first hemorrhagic symptoms were observed when the patient was five years old. The extraction of a deciduous tooth induced a profuse alveolar hemorrhage which could be controlled only after 12 hours by application of direct pressure to the site of the extraction wound and by administration of an epinephrine solution (1:1,000).

From that time on the patient had several severe hemorrhages involving the oral and nasal cavities without apparent causes. Erroneously, the disease was diagnosed as classic hereditary hemophilia.

At the age of 24 years, a tooth was extracted at the Dental Clinic of the university after administration of coagulants and fresh blood transfusion. An abundant alveolar bleeding began 12 hours later which was stopped by several fresh blood transfusions and by filling the extraction wound with thrombin isolated from bovine blood plasma.

Biologic studies of the blood revealed a deficiency of proaccelerin associated with absence of natural anticoagulants. There were no vascular defects. The proaccelerin deficiency in the blood

plasma was demonstrated, Quick's test showing a prolonged partial thromboplastin time, a prolonged heparin tolerance, a prolonged Stypven and Stypven-cephalin time and a slight defect of prothrombin conversion. The proaccelerin content of the blood plasma was less than 5 per cent; prothrombin, proconvertin and the Stuart factor were present in normal amounts. The blood platelets, however, showed no proaccelerin activity.

The congenital proaccelerin deficiency in this patient could be cured completely by injections of small quantities (10 per cent) of absorbed bovine serum. The influence of this hemorrhagic disorder on clotting time appeared greater when specific clotting tests were used. Thromboplastin tests carried out with the patient's plasma revealed a slightly defective (delayed) coagulation mechanism. The defect was more evident when proaccelerin was absent in both incubation mixture and substrata.

Prolonged copious bleeding, associated with Owren's disease, may be encountered occasionally at the dental office. Transfusions of whole blood or fresh plasma (but not of liophilized plasma) are the best treatment. If the patient's history indicates that there is deficiency of proaccelerin, all surgical interventions should be postponed until adequate laboratory studies have been made, and the approval of the patient's physician has been obtained.

Thirty-nine references accompany the case report.

*Istituto Patologia Medica, Via Berengario 47,
Modena, Italy*



Figure 1 Saruya toothpick shop

History

The blessed twig: a historical walk with Japanese toothpicks

Mary W. Standlee. *Mil. Med.* 125:689-703
Oct. 1960

Twigs, grasses and reeds were primitive man's first artificial tools for removing food particles from the teeth. The Babylonians had such cosmetic aids as toothpicks, tweezers and ear picks as early as 3500 B.C. The Chinese before 2600 B.C. had both permanent and disposable types of toothpicks; they also had means of bleaching teeth and used as dental remedies such substances as pomegranate root, opium, ginseng, rhubarb, mercury, sulfur, garlic, and human and animal excreta.

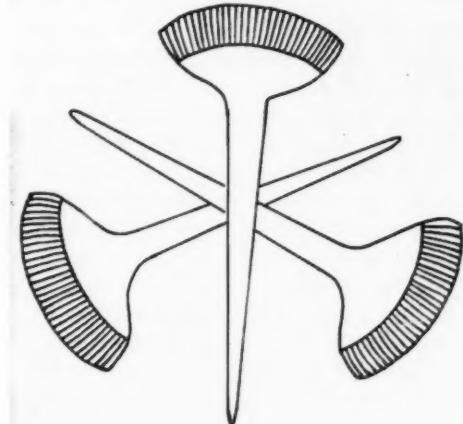
Gautama Buddha (563-483 B.C.) provided a sutra (an aphorism) which encouraged the use of the *yogi*, or toothpick, by all classes of people. From the period of the birth of Buddhism, therefore, oral hygiene and the toothpick had religious significance. The Japanese favored toothpicks made from *kuromoji*, a plant of the camphor tree species.

The "Reju Meibutsu," a small dissertation that reputedly appeared in Japan between 947 and 956 A.D., listed the benefits to be derived from use of the toothpick; these included a pure breath, a healthy alimentary tract, improved taste and digestion, and improved eyesight.

There have been recurrent periods in the West when the toothpick was not only socially but also professionally taboo and considered injurious to the teeth. Such does not seem to have been the case with the many varieties of toothpicks used in Japan.

Toothpicks for use in the spring were made from wood of the willow tree; summer tooth-

Figure 2 Oiran yoji, a form of therapeutic toothpick used by aristocratic women entertainers



枝楊魁花



Figure 4 Using toothpick and gargling bowl

Figure 3 Toothbrushes. The ends of a stick were boiled to a semi-pulp and the strands crushed into needlelike spears



Figure 5 Toothpick holders and toothpicks. 1 = toothpick holders used by women. 2 = tobacco tray toothpick holder



Figure 6 Commercial packaging of toothpicks in Japan. Some are mounted on flower heads

picks were made from cherry; autumn toothpicks were made from chestnut, and winter toothpicks from mandarin orange wood introduced from China about 2,000 years earlier. Not only were toothpicks identified by seasonal use and by trade names, but the materials and styles varied with changes in the Imperial reign. The *konbu yoji*, a sturdy little instrument retaining some of the original tree bark, was favored by the samurai or warrior class of the Muromachi period (1333-1603).

Some Japanese shrines gained impressive reputations for effecting dental cures, and as a consequence sold toothpicks believed to have special healing qualities. When the sufferer was cured, the toothpick was returned to the shrine as a testimonial.

Toothpicks made during the Edo period were about 12 to 18 cm. long and ordinarily were carried in the soft "nose" paper used in lieu of handkerchiefs.

Permanent types of toothpick cases did not attain favor in Japan until the mid-eighteenth century, about the time such cases became popular in Europe. The Japanese prepared a simple and flat ornamental pouch called the *yōji-ire*, usually made of soft leather, brocaded or embroidered material.

Toothpicks have continued to be popular in Japan and are sold at village stalls, department stores and toothpick shops. Public eating places and bars, on the side streets and even in such elite places as the Imperial Hotel, provide toothpicks in conspicuous places. *Yōji-tate*, toothpick holders, are made in hundreds of varieties, of such materials as bamboo, pottery, porcelain and metals.

The Shinto religion, as well as Buddhism, has many devotees in Japan. Through Shintoism and its emphasis on cleanliness and purity, the Japanese have developed outstanding habits of personal hygiene. Salt, symbol of purity, usually is added to mouth rinses. In the old days it was a custom to serve gentlemen callers small bowls of hot salt water for gargling before the social visiting began. A Shintoist's personal ritual for beginning the day includes cleansing the teeth and gargling. A prescribed prebreakfast routine calls for the use of the toothpick, gargling, and rubbing salt on the labial and lingual surfaces of the teeth as a polish, a custom still followed extensively in rural areas.

Today in Japan there are listed twelve *yōji* (toothpick) companies, the largest of which has a monthly income of 23,000,000 yen, of which 15,000,000 yen represents domestic sales and 8,000,000 yen export sales.

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Niels Stensen's first dissertation

Gustav Scherz. *J.Hist.Med.& Allied Sc.*
15:247-264 July 1960

Niels Stensen (1638-1686) is recognized today not only as a first-rate pioneer in anatomical discovery but as having laid down the fundamental tenets followed by modern experts in the sciences of paleontology, geology and crystallography.

Stensen was the son of a goldsmith named Sten Pedersen. Stensen studied as an undergraduate at the University of Copenhagen. He probably left Copenhagen at the end of 1659, spent some time in Rostock, went through Germany to Holland and arrived in Amsterdam about March 20, 1660. Stensen stayed at the boardinghouse of Gerard Blaes who had just been appointed physician of the town and *professor extraordinarius* at the University of Amsterdam. It was in this boardinghouse that Stensen on April 7, 1660, made his first discovery of the excretory duct of the parotid gland. He described his discovery as follows:

"It is a year now since I was hospitably received by Blaes. Following his lectures and after awaiting three weeks for a chance to secure anatomical material, I asked the distinguished man whether I might be permitted to dissect with my own hand

such material as I could buy for myself. He gave his consent and fortune so favored me that in the first sheep's head, which I bought on April 7th and was dissecting alone in the study, I found a duct which, so far as I knew, had been described by no one before. I had removed the skin and was preparing to dissect the brain when I decided to examine first the vessels which surround the cavity of the mouth. With this end in view I was exploring the courses of the veins and arteries when I noticed that the point of my knife was no longer closely confined between the tissues, but moved freely in a large cavity, and presently I heard the teeth themselves resound as I thrust my knife forward. In amazement at the discovery I called in my host [Blaes], that I might hear his opinion. First he ascribed the sound to the violence of my thrust, then resorted to calling it a freak of nature and finally referred to [Thomas] Wharton."

Blaes later claimed the discovery as his own, but the controversy finally was settled in favor of Stensen who made a thorough exploration of the entire glandular system to prove his claim to the discovery. It took him two years, but the result was to make him the leading expert in this subject and later in the structure of muscles.

The author, while examining a collection of early books known as the Loganian Library, deposited in the Library Company of Philadelphia, came across Stensen's first printed publication, a short treatise on thermal baths, which was the subject of a lecture he delivered on July 8, 1660.

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The craftsman and the dentist: from cutler to dental manufacturer

George B. Denton. *J. Am. Col. Den.* 27:195-200
Sept. 1960

The dentist always has been dependent on various craftsmen for services, materials, tools and instruments. In the earlier years these artisans included the jeweler, the enameler, the foundryman, the mounter, the gold beater, the ivory turner and the cutler. Next to the jeweler and his associated craftsmen, the artisan on whom the dentist was most dependent was the cutler. Until early in the nineteenth century, when the making of surgical

instruments became a separate art, the cutler usually supplied all the needs of the dentist for lancets, scalpels, forceps, elevators and trephines.

In the earlier days, dental and surgical instruments were for the most part invented and improved by surgeons, but made by cutlers.

Jean Jacques Perret, a Parisian cutler, in 1772 wrote a three-volume work, *The Art of Cutlery*, which describes and depicts such dental instruments as explorers, cotton-carriers, files, cauteries, pluggers, forceps, pelicans, elevators, keys, the goat's-foot and other extraction instruments. Most of the one-piece instruments, like scalers, were one franc if made of iron, two francs if made of steel. Steel forceps were three francs.

During the early nineteenth century, the cutler specializing in surgical instruments was superseded by the surgical instrument maker. Such a man was Jean Evrard (1807-1882) in England, who came to be highly esteemed by dentists. A pupil of Evrard's was Daniel Joseph Collins (1831-1901), whose son was still producing hand-wrought forceps for dentists in 1935.

It was one of the ambitions of the young dentist in the middle of the nineteenth century to possess forceps made by some famous instrument maker.

Until 1820 in the United States, all forceps of any merit were imported from Europe. In the early forties, Chapin A. Harris and other prominent dentists were recommending instruments made by Francis Arnold of Baltimore.

Almost imperceptibly, the instrument maker specializing in dental equipment was superseded by the dental manufacturer and dealer in dental supplies. Broadening his business by selling instruments and gold foil along with his porcelain teeth, the manufacturer differentiated himself from the instrument maker. Sometimes the dental dealer manufactured none of the products which he sold, and established the dental "depot."

In England, the great firm established by Claudio Ash began as silversmiths in London and later became important in the dental manufacturing business. In America, numerous manufacturers of dental instruments and supplies arose; among these were Horatio Kern, Chevalier, and Samuel Stockton, a dentist, whose nephew in 1844 began the business of tooth manufacture. In 1851 the firm became Jones, White, and McCurdy; after vicissitudes, the S. S. White Dental

Manufacturing Company was organized in 1881, and gradually expanded until it became the largest in the world.

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**The development of the application
of electricity to dental surgery
up to 1900**

J. A. Donaldson. *Brit.D.J.* 109:121-131
Aug. 16, 1960

The introduction of the Leyden jar, about 1745, by permitting the sensation of stronger electric shocks than had previously been possible, stimulated widespread interest in the physiologic effects of electricity. The applications of electricity to dentistry developed as rapidly as the improvements of sources of supply, systems of distribution and means of use.

In 1850 George Waite designed an instrument for applying electric heat in dental operations.

It is doubtful who first attempted to eliminate pain by electrical means during the extraction of teeth. Priority has been attributed to Jerome B. Francis, of Philadelphia, an account of whose experiments was first published in the *American Journal of Dental Science* in July 1858.

Electricity as a source of power to operate dental engines was applied in 1856 by George F. Green. He was employed as an inventor of electrical devices and between 1870 and 1874 produced for S. S. White a series of combined electric motors and handpieces.

In February 1881 a meeting of the Odontological Society of Pennsylvania was held in the office of E. R. Pettit who demonstrated a number of items, among them Professor Griscom's new electromotor for sewing machines and dental engines. This probably was the first electric motor to be widely adopted in America and Europe for dental purposes.

W. G. A. Bonwill is said to have had the idea of an electromagnetic mallet for condensing gold fillings suggested to him in 1867 by hearing an unusually loud telegraph sounder in operation. He

produced his first electromagnetic mallet and when he went to file it at the American Patent Office in 1871 he discovered that George F. Green, working independently, had preceded him by a few months.

The priority of introduction of the electric furnace was a subject of dispute, but the American Dental Association in 1896 awarded priority to L. E. Custer who began experiments in 1889.

As early as 1879, the *American Journal of Dental Science* contained a reference to a mouth mirror illuminated by electric light, but it was two or three years before the mouth lamp became a practical instrument.

The phenomena of electrolysis were applied to a number of dental purposes. A. Hill read to the American Society of Dental Surgeons in 1851 an account of experiments he had made to deposit gold electrolytically on dentures. W. B. Ames read to the Illinois State Dental Society in 1885 a survey of the theory and practice of electrolysis as applied to dentistry. F. McGraw contributed to the Chicago Dental Society meeting in February 1889 a report of his experiments in obtunding sensitive dentin by electrolysis.

The dental literature of the last four years of the nineteenth century has many references to the use of the new diagnostic aid, the roentgen ray.

By the end of the nineteenth century, many of the uses of electricity in dentistry had been discovered and apparatus to exploit these uses had been invented. During the twentieth century, improvements in electrical engineering techniques led to refinement and development of much of this apparatus.

Ingenious and enthusiastic dental practitioners were quick to understand the uses that could be made of the electrical discoveries of the nineteenth century in their professional work, and they disseminated the results of this understanding through reports to the increasing number of dental societies, through articles in the professional journals and with the support of the dental supply firms.

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**Does fluoridated drinking water
result in an unpleasant aftertaste?**

Arne Hagen. *Sveriges tandläk.förb.Tidn.*
52:378 July 1, 1960

During the seventy-fifth annual session of the Norwegian Dental Association which was held in February 1960 at Oslo, an interesting investigation was carried out.

At random, participants in the session were asked to test samples of drinking water taken from two bottles. The first bottle contained fluoridated drinking water, and the second bottle, water of the Oslo communal water supply. The subjects were asked to decide whether they found a difference in taste between the samples. If the subject felt that the water taken from the first bottle left an unpleasant taste in his mouth, he put a green card into a ballot box; if he felt that the water taken from the second bottle had an unpleasant aftertaste, he used a blue card, and if he found no difference in taste, he used a white card.

This was a well-controlled double-blind test; no one at the session knew which of the bottles contained fluoridated water. The information, in a sealed envelope, was kept at the Pedodontic Clinic of the Norwegian State Dental College, and the envelope was opened after conclusion of the test.

The investigation was designed mainly to awaken the interest of the Norwegian general public in fluoridation of the community water supplies and to disprove the assertion of opponents of fluoridation that addition of fluorine to the drinking water changes unfavorably the taste of the water itself as well as of all products containing water.

The results were as follows: 372 (34.3 per cent) of the subjects had used green cards; 383 (35.3 per cent), blue cards, and 330 (30.4 per cent) white cards.

This demonstrated that 1,085 subjects were unable to decide whether fluoridated drinking water resulted in an unpleasant aftertaste. On the second day of the session, the test was repeated but both bottles contained water of the Oslo communal water supply. The results, however, were almost identical with that of the first test in that 75 per cent felt that one or the other of the bottles contained water with a more or less unpleasant taste, and 25 per cent found no difference in taste between the samples.

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**Combined effect and action of vanadium
and fluorine on experimental caries**

O. Tempestini and G. Pappalardo.
Panminerva med. 2:344-348 July-Aug. 1960
[in English]

The caries-reducing effects of certain trace elements are well known. First among these was fluorine because a large number of experiments on the use of fluorine in various vehicles have been carried out in man and animals. The mechanism of the action of fluorine, however, is still undetermined.

Clinical and experimental research has revealed that fluorine, if administered in optimal doses during the period of formation and development of dental tissues, exerts a positive influence on the mineral metabolism making the teeth more resistant to cariogenic attacks. Fluorine affects the metabolism in tooth structures by a double mechanism: (1) it is fixed by the calcium phosphatases forming more complex molecules (fluorium apatite), and (2) it influences certain forms of the phosphatases to take part in the formation and disintegration of the mineral components of the hard tissues (bones and teeth).

Besides fluorine, there are other trace elements with experimentally proved mineralizing properties which make the hard tooth structures more resistant to caries.

Vanadium is a metallic element which occurs in abundance in the lithosphere. It was discovered in vanadinite by Del Rio (1801) who named it erythronium. Sefstrom (1830) rediscovered the element and created the term vanadium after the Latinized name for the Nordic goddess Freya:

vanadis. Geyger (1954) administered vanadium to golden hamsters in daily doses of 0.8 mg., either dry mixed with the cariogenic Keyes' diet or by injecting it in an aqueous solution. His experiments proved that vanadium oxide produced a greater resistance to caries in all tooth tissues.

Vanadium was administered in a total dose of 35 mg. to albino rats, together with a cariogenic diet (H.W.C. diet), at the Stomatologic Clinic of the University of Catania, Italy. The experiment lasted 90 days and caused a reduction of 11 per cent in the incidence of caries, compared with the control animals which received only the cariogenic diet.

The study was carried out on three groups of young rats, each group consisting of nine animals. The first group received fluorine with the cariogenic diet; the second group, fluorine and vanadium with the cariogenic diet, whereas the third group received only the cariogenic diet and was kept as the control group.

The H.W.C. diet, described by Hoppert, Weber and Canniff, consisted of hard grains (68 parts), linseed (15 parts), raw casein (7 parts), calcium phosphate (2 parts), cod liver oil (2 parts), calcium carbonate ($\frac{1}{2}$ part) and sodium chloride ($\frac{1}{2}$ part). Fluorine was administered parenterally in doses of 0.3 cc. of a 2.5 per cent isotonic solution of sodium fluoride daily for the first 50 days and on alternating days thereafter. Vanadium was administered orally in doses of 0.5 mg. of a 0.1 per cent solution of sodium monovanadate at a total dose of 35 mg. The animals of Group 2 (fluorine plus vanadium) received the same quantity of fluorine as Group 1 (fluorine).

Toward the end of the third experimental week, the rats treated only with fluorine showed the characteristic (initial) symptoms of chronic dental fluorosis (mottled enamel).

The carious lesions occurring in all three groups were studied macroscopically, microscopically and histologically (hematoxylin-eosin staining), after the animals had been sacrificed on the ninetieth day of the experiment. The animals of Group 1 showed 45 carious molars (41.66 per cent); those of Group 2 showed 35.18 carious molars (35.18 per cent), whereas the control group showed 65 carious molars (60 per cent). The carious lesions varied in degree and were found to be more serious in the control animals.

Vanadium administered together with fluorine to rats kept on a cariogenic diet, reinforced the anticariogenic effect and action of fluorine significantly. However, vanadium seems to produce an early whitening of the lower incisors or an orange-yellow pigmentation. These changes in the color of the enamel were probably caused by the functional activity of vanadium in the adamanto-blastic cells.

Fluorine and vanadium continued in their caries-reducing action. However, both elements produced a toxic effect on the organism of the rats that was manifested by a decrease in the average body weight by 27 Gm. (Group 1) or 32 Gm. (Group 2). At the end of the experiment, the tooth surfaces in Group 2 were chocolate colored.

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**The influence of family size
on the prevalence of dental caries
in children**

J. N. Mansbridge. *Arch. Oral Biol.*
2:209-214 Aug. 1960

The present study was undertaken to determine whether consistent differences in the incidence of caries in deciduous and permanent teeth existed between children of differing rank order of birth.

For deciduous teeth, the average DMF rate for 65 boys, who had no siblings and ranged in age from 5 to 8 years, was 7.01. The average DMF rate for 299 boys in the same age group, whose rank order of birth was third or later, was 5.80. The average DMF rate for 84 girls, who had no siblings and were in the same age group, was 6.89; the average DMF rate for 251 girls in the same age group whose rank order of birth was third or later, was 6.02.

For permanent teeth, the average DMF rates for 43 boys and 91 girls who had no siblings and were approximately 13 years old, were 6.23 and 6.97. The comparable rates for 134 boys and 146 girls of the same age group whose rank order of birth was third or later were 5.39 and 5.76.

The results show that, when the children are grouped according to their rank order of birth, the average number of DMF teeth declined from the "only" child to those whose birth rank was

third or later. This finding was common to both deciduous and permanent teeth, and to both boys and girls.

The differences in the incidence of caries between the differing ranks of birth in the Edinburgh children studied would seem most likely to be a reflection of changes in the posteruptive oral environment due to the economics of family size, each increase in family size reducing the level of consumption of those foods which may be regarded as luxuries, but affecting least those items of diet which are essential to health.

It is concluded that differences in diet resulting from social and economic conditions can exert an influence on the susceptibility to dental caries in school children that is not negligible.

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Medical and biological aspects of fluoridation

Lancet No. 7147:425-428 Aug. 20, 1960

Opposition to fluoridation has two main arguments: (1) compulsory medication, irrespective of its efficacy, is repugnant, and (2) not enough is yet known about the chronic toxicity of fluorine.

Moral scruples always are worthy of respect, especially when objective and unbiased, but some of the arguments are hardly tenable. It is unlikely that those who support fluoridation have no concern for children's teeth but wish only to break down the fundamental principle of consent to treatment; nor is it any more probable that the continued support from various public bodies for fluoridation projects in the United States is a mere face-saving maneuver.

A far more cogent argument is that the effects of the long-term ingestion of low concentrations of fluorine are unknown, and will remain unknown unless experimentation is carried out on an impossibly large scale.

Elemental fluorine is a highly reactive substance and does not occur free in nature, but the fluorides, both simple and complex, are found almost universally. Many of them are only sparingly soluble in water, and their toxicity is related to their solubility and their degree of dissociation —hence, sodium fluoride is more toxic than the corresponding calcium salt.

Brun and others (1941) asserted that a daily intake of 28 mg. of fluorine (fluoride ion) over many years was necessary to produce fluorosis, but later workers consider that this figure is too high and would place it at 20 mg. or somewhat less.

No one sign is pathognomonic of chronic fluorosis in either man or animals. The mottling of dental enamel is usually regarded as a sensitive diagnostic criterion, but it can appear only when fluorine has been ingested during the formative period of the teeth. Mottling often is seen in the teeth of children who have lived all their lives in areas where the fluorine in the drinking water never exceeds 0.1 ppm, and may be an indication of fluorine deficiency. Observers not specially trained might be deceived by the enamel dysplasias produced by systemic disorders.

The early changes of fluorosis can be detected only roentgenographically, and include increased opacity of the bones and calcification of the ligamentous attachments. The first changes usually are seen in the pelvis and in the lumbar region of the spine. Human beings living in high fluorine areas do not seem any more liable to fractures, and, when they do have fractures, healing is not delayed. In a ten year investigation of 118 persons, who had used a water supply containing 8 ppm fluorine for over 30 years, no significant adverse effects, apart from dental fluorosis, could be found. There was no unusual incidence of skeletal fractures, arthritis, hypertrophic changes in the skeleton, or delay in the healing of fractures. In 10 to 15 per cent of the 118 subjects there were slight and ill-defined changes in bone density.

The relation between fluorine intake and permanent deposition is not known, nor is the influence (if any) of tea drinking and fish eating. The mechanism which induces fluoride osteosclerosis is unknown; it is likely to be a modification of some enzyme reaction, but which enzyme is concerned is a matter of conjecture. Nor is it known why the lumbar region of the spine is preferentially affected, or why fluorides should alter the functioning of the ameloblasts. Arthritic bone contains normal concentrations of fluorine and yet there is a greater tendency for hypertrophic changes in the vertebrae of those who live in low fluorine areas. Much available

evidence suggests that there is an optimal absorption, but one which has yet to be determined with certainty.

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Dental health problems of the Negro population

Clifton O. Dummett. *J.A.D.A.* 61:308-314 Sept. 1960

The common dental diseases which affect the Negro American are no different from those which affect the Caucasian American. Generally, the Negro has a lower incidence of dental caries and a higher incidence of periodontal disease and malocclusion.

In 1940 the ratio of population to dentists in the United States was 1,865 to 1; but the ratio of Negro population to Negro dentists in 1940 was 8,745 to 1. The lack of available dental care is particularly acute among Negroes in the South, where the ratio of Negro population to Negro dentists is 13,970 to 1; the South contains about 10,000,000 Negroes, more than 75 per cent of the nation's Negro population.

Among the blocks to dental care for Negroes are low income, folk beliefs and folk health practices which may hinder the Negro from accepting dental care, residence in rural areas which are unattractive to dentists, discriminatory practices whereby some white dentists do not accept Negro patients, and the inequitable distribution of Negro dentists among the population.

Today less than 200 Negro dentists are graduated each year from dental schools in the United States. Both the quantity and quality of Negro dentists should be stimulated.

Dental health education directed to Negro children probably is the most important means of reducing the apathy which many Negroes feel regarding dental problems.

Negro dentists should be encouraged to pursue training in specialization, research and education so the services available to the Negro population can be expanded. Ways should be found to provide outlets and careers for the dentists after specialized training has been procured.

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Dental caries and soil constituents in New Zealand

M.J.Australia 2:227 Aug. 6, 1960

In 1955, Hewat and Eastcott reported that a relationship existed between prevalence of caries and certain soil conditions in New Zealand. T. G. Ludwig, W. B. Helay and F. L. Losee have been studying this matter and have presented a preliminary report.

One phase of the investigation involves the study of the effect on the incidence of caries of recent saline soils in Napier, Hawkes Bay, which experienced extensive earthquakes in 1931. Five square miles of an extensive salt lagoon adjacent to the city has since been drained and used as a residential area.

In 1954 dental examinations were undertaken of children in Napier and in Hastings, a neighboring city whose water supply was to be fluoridated. Before fluoridation, it was found that the Napier children, 5 to 8 years old, had a considerably lower incidence of caries than the children of equivalent age in Hastings. This was surprising because the two cities differ little in situation and population, and the water supply of the two cities comes from the same artesian strata. Examination of the urine of Napier children yielded results that made it unlikely that they received extra fluorine from any source.

When the dental examinations were repeated in 1957, it was found that the caries incidence in Hastings children had been reduced to approximately the same level as that in Napier.

Analysis of the soils from Napier and Hastings showed little difference, except that Hastings soils were acid whereas the Napier soils were alkaline and contained much more calcium.

A large range of vegetables grown on the soils from the two cities was examined. In general, Napier vegetables contained more molybdenum, aluminum and titanium than Hastings vegetables, and less copper, manganese, barium and strontium.

Various investigators have suggested that molybdenum is of importance in tooth development. Molybdenum was present in only one Hastings vegetable, whereas it was present in nearly all Napier vegetables in amounts up to 9.5 ppm. It seems possible that the intake of molybdenum ac-

counts for the lower incidence of caries in Napier before the water supply in Hastings was fluoridated.

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**Community planning for dental care
of the chronically ill and disabled**

Marvin P. Sheldon. *Am.J.Pub.Health*
50:1298-1303 Sept. 1960

Among the groups requiring special dental attention of a type usually not available in the average dental office or clinic are patients with cerebral palsy (about 270,000 in the United States), patients with mental retardation (about 540,000), aged patients with disabilities (about 3,000,000), and patients with mental illness (about 1,100,000).

Most communities have a number of public and voluntary agencies interested in the chronically ill and disabled. Some of these provide services and others make arrangements for payment of services. Few communities have consolidated these agencies into an identifiable program.

The dental society is a valuable community resource that often has been overlooked. The success of any dental plan to treat the chronically ill and disabled depends on the availability of dental personnel willing to participate.

An examination of available facilities is essential prior to planning a dental program. The inpatient facilities will require staffing and equipment. The services brought to the patient's bedside or home will require alternate staffing and equipment.

The committee formed within a local dental society to consider dental services for the chronically ill and disabled should have two major objects: (1) to stimulate interest within the local dental society in participating in such a program, and (2) to stimulate interest within various community organizations to include dentists in their planning and program activities.

In one state the board of governors has appointed a committee on dentistry for the chronically ill and aged. This committee engages in mutual planning with the committee on aging of the state medical society.

Financing of dental care programs for the disabled and chronically ill has been meager. Sometimes the dental needs of these patients have been overlooked. Planning can overcome this. The Federal Aid Program to states allows for dental care depending on state interpretation and matching of funds. The ladies auxiliary of a city dental society has raised sufficient money to purchase portable dental equipment for a dental program for the homebound. Another such program has received financial support from a private philanthropic organization. Maternal and child health funds are being used by one state health department to support a dental evaluation program for handicapped children. Certain welfare departments have appropriated money to equip and staff dental clinics in the larger county infirmaries.

The community hospital, the local health department and the local welfare department could cooperate in developing a dental service program for the homebound patients. Several samples of portable dental equipment are being field tested now in such programs.

The evaluation of the community resources should reveal where interests in the community are parallel with the interests of the dental society.

The final phase of program planning is the continuous cultivation of community interest by the dental society committee until the plan is translated into action.

U.S. Department of Health, Education, and Welfare, Washington, D.C.

**How to educate high school students
in oral hygiene**

Sumter S. Armin and Perry J. Sandell.
J.Health, Phys.Ed. & Recreat. 31:7:33-40
Oct. 1960

School children are taught toothbrushing by their dentists, parents and teachers; yet it is rare to find a person who does an effective job of cleaning. Perhaps people believe they are doing a good job when they are not. Maybe they do not know why they brush their teeth, and so are not motivated properly.

Teachers need new, interesting methods for teaching teen-agers why and how to clean their

teeth. With the described method, children see how acid is produced from sugar by mouth micro-organisms. Then they make use of a stain to see the extent of microbes in their own mouths. They then learn that only thorough toothbrushing can eliminate the microorganisms, and that the process must be repeated daily.

The production of acids by microbial masses on the teeth may be demonstrated easily by using a 0.02 per cent aqueous methyl red solution. To show students how the acid indicator dye works, a drop of the methyl red is placed on a clean slab, and a little soap (alkaline) solution is added. The yellow color of the indicator is intensified. Another drop of indicator is placed on the slab and a little vinegar (acid) is added. A deep red color is produced instantly.

Some microbial matter is scraped from the gingiva with a steel pen point, using the rounded end that fits into the penholder. The pointed end of the pen point is used to scrape for masses between the teeth. The microbial masses are arranged in the shape of a doughnut, enough to form a quarter-inch circle. Two or three drops of aqueous methyl red solution are placed on the mass. A few crystals of sugar are added to the liquid in the center of the ring. The indicator will turn red within a matter of seconds after the sugar is added.

The effect of acid on teeth may be demonstrated by placing an extracted tooth (obtained from the local dentist) in a small bottle of vinegar for several hours or overnight. The changes observed are similar to those seen in the mouth when a tooth decays. The enamel loses its translucency, turns chalky, opaque white, and softens. As the acid continues to demineralize the tooth, cavities form which grow larger until they can be seen with the naked eye.

The next step is to teach the student to recognize the microorganisms on his own teeth. This is done with basic fuchsin. The fuchsin colors the microorganisms red but does not stain the teeth. A stock solution of basic fuchsin is made by dissolving 6 Gm. of the dye in 100 cc. of 95 per cent ethyl alcohol. The solution is stored in half

ounce bottles with dropper corks. The disclosing stain is made at the time the experiment is performed, by adding 8 to 12 drops of the stock solution to two tablespoons of water in a paper cup. The student is instructed to rinse the teeth thoroughly with the disclosing stain for half a minute and to spit it back in the cup. The rinsings are poured down the drain and the mouth and teeth are rinsed thoroughly with fresh water.

The student uses a hand mirror to see the adherent organisms on the tooth surfaces. The teacher explains the role of the adherent microbial masses as causative agents of dental disease.

Students then use a soft bristle brush to remove all the stains from the teeth and tongue to the best of their ability. The students will not be able to remove all the stained material. The teacher then demonstrates the effective use of the toothbrush, and also instructs students in the correct use of dental floss. They are shown how floss removes the stained adherent masses from the proximal surfaces.

After cleansing with brush and floss, the student rinses the dislodged microbial masses from his mouth and examines his teeth with a mirror. Another application of fuchsin is made and the student reexamines his teeth to determine if any microorganisms remain.

The entire process should be repeated the next day, to demonstrate that the organisms grow back within 24 hours. This is visual proof of the necessity for daily toothbrushing.

The students are encouraged to practice effective toothbrushing at home, using the fuchsin occasionally as a check on effectiveness. The teacher should remind students that the most convenient time for systematic personal oral hygiene is just before bed each night. Additional cleansing after meals also is advisable, especially after sweet or sticky desserts. The dentist should be consulted at regular intervals as his help is necessary to guide the student to effective hygienic practices and to treat dental disease when it is present.

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General

**Gemination in the dentition of a lizard
(*Gerrhonotus multicarinatus webbii*)**

W. J. Schmidt. *Deut. zahnärztl. Zschr.*
15:1149-1151 Aug. 15, 1960

Gemination or twin formation is a condition in which a single tooth germ divides during development and forms a double crown, usually with a single root and root canal.

In the human dentition, gemination is frequent, especially in deciduous teeth. In animal dentition, gemination has not been observed, although isolated instances of fusion (two normally separated tooth germs become united) and concrecence (union of two teeth by cementum) have been reported. However, none of these tooth anomalies have appeared in the dentition of reptiles.

During an examination of mandibles from 15 genera of lizards (17 different species), carried out at the Zoological Institute of the University of Giessen, Germany, a geminated tooth was detected in the mandible of a Central American lizard, *Gerrhonotus multicarinatus webbii*, a species related to the European *Anguidae* (limbless lizards).

The teeth of *Gerrhonotus* are pleurodont, that is they are attached to one side of the supporting bone only, leaving the lingual root surface unattached. These teeth have no cementum, and their crowns are covered with a glossy enamel layer which forms a labiolingual oblated crown.

The geminated tooth was the second anterior tooth of a dental arch consisting of 12 teeth. In labial and lingual views, the geminated tooth appeared broader than the adjacent normal tooth. It was characterized by a deep fissure which divided the tooth labiolingually. There were signs of inflammation of the periodontal membrane and resorption of the alveolar bone.

The gemination (complete dichotomy) in the



*Geminated tooth found in the mandible of the Central American lizard, *Gerrhonotus multicarinatus webbii*. Above: Lingual view of the geminated tooth and the adjacent normal tooth. Below: Distal view of the bifid crown. The glossy enamel extends deep into the fissure between the separated parts forming a wedge-shaped, gradually fused lamella*

tooth of the lizard probably was caused by an invagination of the enamel organ into the dentin organ, forming the partial bifid crown with a single root and root canal. As in the human dentition, a hereditary factor may be suspected to have produced the division of the tooth.

*Zoologisches Institut, Ludwigstrasse 23,
Giessen/Lahn, Germany*

**From the office of the editor:
function and structure
of a professional journal**

K. M. Hartlmaier. *Zahnärztl. Mitt.*
48:561-564 July 1, 1960

The members of any given profession who usually form the majority of subscribers to a professional journal must learn to distinguish between three types of publications: (1) the scientific magazine; (2) the official organ of an association or society, and (3) the professional journal. Although certain professional publications combine the features of all three types within their pages, the differentiation is still recognizable.

The editor of a scientific magazine is mainly concerned with the selection and compilation of material, the arrangement and the typographic presentation. This requires an ability to survey, review and supervise; a superior experience in and a comprehensive knowledge of the specific scientific field, as well as a mental quality to decide definitely and firmly all editorial and scientific matters that arise. He seldom publishes his own articles or takes an official position explaining or defending his own opinion or the policy of an organization. Scientific articles are written by experts and, therefore, should not have to be altered or edited.

The editor of an official organ of an association or society is mainly concerned with actuality, that is, newsworthy stories of happenings within the organization or of interest to the profession.

The editor of a professional journal—which combines the features of a magazine with those of a newspaper—is mainly concerned with actuality, periodicity and publicity. He has to decide, often on the spur of the moment, what is really factual, practical and substantial. Before making

any decision, he must have in mind not only his specific readership but also governmental authorities, political parties or groups and organizations of other professions. His judgments, therefore, cannot be objective because he has to take various subjective factors into consideration. Usually, the editor is not only a skilled journalist but a member of the profession. It is possible that an article submitted appears to be important and substantial but it is not written to be of benefit to the average reader. The editor must be able to judge what is essential for all or most readers.

A good professional journal must have its own "face." This face is characterized not only by its cover or format but by its contents. The purpose of every professional journal is to represent the interests of the profession, never to damage those interests or to oppose official policies. Its contents must be vital (in both meanings of the word), copious and changeable. As do most newspapers, it should contain editorials dealing with current problems. Often, the editorial determines the value of a journal. Important for the function and structure of a professional journal, especially one devoted to a health profession, is the farsightedness of its editor. Hardly less important is a strict separation between the editorial office and that of the business and advertising manager. Claims of manufacturers, even if they are substantiated by members of the profession, have no place in the editorial part of a journal.

More than is generally recognized, the make-up of a professional journal, that is, the wording of headlines, the type of printing selected, the manner in which illustrations and white space are distributed, contribute to success or failure of a journal. Subscribers to a professional journal usually are very busy men who have to be almost seduced to read what they should read. Esthetics in form, readability and clarity are seductive factors.

The editor should not be a language teacher, neither to his authors nor to his readers. But it is his responsibility to safeguard the style of his journal by permitting only excellent language to be used. Professional terminology is permissible but journalistic slang must be avoided. The authors should be grateful if their articles are corrected, edited and re-edited because mastering the written language, especially the style of a journal of an academic profession, is an achievement sel-

dom found in scientific writers who are more interested in "what" they have to say than in "how" it is said.

Typography is the last but not the least important responsibility of the editor. His journal must never distract the readers from the text, even with beautiful printing. Space distribution within its contents is a valuable factor as is the color, weight and texture of the paper used. Composition is the selection and arrangement of all the elements of typography; imposition is the proper placing of the composition on the sheets; printing comprises the presswork, securing a perfection of register and the quality and crispness of inking. The editor must control the composition, imposition and printing of his journal, and therefore, all factors of typography. Care for the typography of a professional journal means care for its unity, care for its authors and care for its readers.

Melchiorstrasse 14, Cologne, Germany

Socioeconomic status and the utilization of dentists' service

Louis Kriesberg and Beatrice R. Treiman.
J.Am.Col.Den. 27:147-164 Sept. 1960

This report presents some of the findings from a preliminary analysis of data obtained in 1959 through personal interviews with 1,862 adults, all of whom had retained some of their natural teeth. The survey was conducted by the National Opinion Research Center under sponsorship of the Commission on the Survey of Dentistry in the United States. This report is particularly concerned with investigating the relationship between socioeconomic status of the patients and visits to the dental office.

Respondents were asked what led them to initiate their last dental visit. A third of the respondents said they had experienced some pain, and another third said they had other evidence of a need for dental care; but 30 per cent said they went only for a checkup or to have their teeth cleaned, and 4 per cent gave other reasons for having gone to the dentist. However, 23 per cent of all the respondents thought they needed some dental care during the last 12 months but had not been to the dentist within the preceding year.

Clearly, some people who believe they need dental care did not always receive it; on the other hand, some people go to the dentist even when they do not think they need dental work other than an examination or prophylaxis. Therefore, the need for dental treatment or work is not, in itself, a sufficient reason for going to the dentist.

Previous studies have shown that persons of higher socioeconomic status, as measured by income, education or occupation, are much more likely to go to the dentist than are persons of lower status. The findings of this study are in agreement. For example, 34 per cent of those who had eight or fewer years of education had been to the dentist within the 12 months prior to the interview; but of those who had attended college, 74 per cent had gone. Of those with family incomes under \$2,000, 31 per cent had gone to the dentist within the past year; of those with incomes of \$7,500 or more, 69 per cent had gone.

Of 104 adults with an annual income under \$2,000 and with only a grade school education, only 8 per cent go to the dentist for preventive treatment. But of the 98 adults with an annual income of \$7,500 and over and a college education, 70 per cent go for preventive treatment.

Of 79 adults with annual incomes under \$2,000 and with only a grade school education, 53 per cent do not go to the dentist even though they believe they need dental work. Of 87 adults with annual incomes over \$7,500 and a college education, only 2 per cent do not go to the dentist when they believe they need dental work.

The authors had hypothesized that dental care habits learned in childhood, attitudes about teeth and dental care, and the relationship with the dentist would be particularly important in explaining going to the dentist for preventive treatment; the data do not seem to support these views.

The data do suggest that different aspects of social class are more important for one measure than another. Constraints such as lack of money seem particularly important for not going to the dentist when dental work is needed.

Information about teeth and even beliefs about their care and individual values regarding teeth apparently are less significant factors affecting

utilization than are early childhood training and particularly the characteristics of the respondents' dentists. These latter factors affect not going to the dentist when work is needed as well as going for preventive treatment. These factors appear to be particularly important mechanisms in the relationship between social class and going to the dentist.

None of these sets of factors completely explains the relationship between social class and either measure of the utilization of dental services. Perhaps there are additional aspects of social class which have not been analyzed that account for the differences not yet explained; for example, social class differences in style of life and the expectations of friends about dental care. Or perhaps the interrelationships of the several variables already considered, if refined and combined, could explain nearly all the differences in social class utilization.

5736 South Woodlawn Avenue, Chicago, Ill.

Where do we go from here?

Homer Dickson. *J. Tennessee D.A.* 40:296-303
Oct. 1960

In the past 40 years the dental laboratory has changed from a makeshift operation in a poorly lighted basement to a modern, well-equipped laboratory in well-lighted, well-ventilated quarters. The dental technician who once worked six days per week, and up to 80 hours a week, now works 40 hours.

Even up to the late 1930's, the dental laboratory owner did not have to worry about such things as overtime pay, group insurance, compulsory and voluntary fringe benefits and other factors that he must now consider if he is to compete with other business in obtaining the necessary labor force. The owner of a dental laboratory was in a position where he could produce at low cost, sell at a low price, and still have a high profit margin. Today, this has changed.

The owner of a dental laboratory today has become the victim of a squeeze play. His costs have risen but he has hesitated to raise his prices because sometimes he encounters resistance from the dentists he serves. The squeeze has provided the incentive that has brought a segment of the

bushwhacking group out in the open where it now claims it should be allowed to continue its nefarious activity, legally, under the title of "public denturist." One of the arguments of the denturist is that dentists should have the right to work on the patient so long as he has teeth, but that after the patient loses his teeth the dental profession should have no more right to a monopoly in making the patient's dentures than the medical profession should have in the undertaking business after the patients have died.

Where do the bushwhackers and denturists come from? Some represent dental laboratories that once were ethical. Some are technicians who once were employed by ethical dental laboratories. Some are technicians trained by those engaged in the illegal practice of dentistry, others are technicians who once were employed by dentists, and still others were trained by the armed forces or trained in prisons. Most denturists are now in that field because the dental technician's wage scale is far below that of comparable skilled technical help in other industries, and because some so-called dental laboratory operators cannot make ends meet by conducting their business in an ethical, legal manner. The illegal practice of dentistry is increasing. Every dollar that is spent for illegal dentistry is a dollar lost to the dental profession and the ethical dental laboratories.

The first thing the ethical laboratory and the dental profession should do is to admit that a problem really exists and have a desire to do something about it. Both the dental profession and the owners of ethical dental laboratories are responsible for the present alarming situation, and both must begin work at once on corrective measures.

The joint American Dental Association-National Association of Dental Laboratories education-certification program for dental technicians is designed to help alleviate the shortage of dental technicians in the future. The program is a step forward.

State dental laws should be strengthened. The dental laboratory owner should operate his laboratory in a businesslike manner. The prospective dental technician should be assured of a reasonable salary and a reasonable amount of security for the future. The technician salary level

must be raised, and by a considerable amount, all down the line. The ethical laboratories must ask dentists to go along with considerably higher laboratory charges, in some instances, than many of them are accustomed to pay. This is especially applicable to the southern and southwestern areas. Unless the dental profession and the ethical dental laboratories work together to eliminate the present danger, both stand to lose the present market.

P. O. Box 905, Fort Smith, Ark.

Health and disease

René J. Dubos. *J.A.M.A.* 174:505-507
Oct. 1, 1960

A purely bacteriologic and immunologic approach, based on the classic formulation of the germ theory in the etiology of disease, has been the main force in the study of infectious processes during the last 80 years. Ever since Pasteur, "*cherchez le microbe*" has been the motto in the research efforts of bacteriologists and immunologists, and in the diagnostic procedures of dentists, physicians and public health officers. However, it appears that the law of diminishing returns is beginning to operate in this approach to the problems of infection, and that future rewards will not be commensurate with the effort and cost.

Man's ability to produce new vaccines and drugs cannot be questioned, but a question arises regarding the magnitude of beneficial effects to be derived from the use of these agents in regard to the total disease problem in today's communities.

In its original form, the germ theory of disease was created to deal with the acute and epidemic infections which dominated the pathology during the nineteenth century. Today, these types of infections have become less destructive and are being replaced by other types of infections which demand a reformulation of the germ theory. There are many reasons for the change in the pattern of infectious disease. The most obvious, of course, is the success of treatment methods at hand for the control of acute bacterial and parasitic diseases. More important, probably, is the fact that changes in the genetic structure of the

population and in the ways of life have altered considerably both the spread of infectious microorganisms and man's resistance to them.

Despite a common belief, however, the total effect of pharmacologic discoveries and of biologic and social advances has not been to eliminate, or even to reduce significantly, the practical importance of the pathology of infections. Today, problems arise not from the highly virulent pathogens but from the common microorganisms that are ubiquitous in man's environment, and even in his body. These microorganisms had long been assumed to be essentially harmless, but they became agents of disease when the general resistance of the human body had been decreased by disturbances in the individual physiology or in social conditions. The time has come to reformulate the germ theory of disease in terms of the total biologic and social conditions that exist today—conditions which are very different from those that prevailed a few generations ago.

Thomas Huxley stated that every new concept begins as heresy, evolves into orthodoxy and finally ends as superstition. This remark applies to the germ theory of disease. To escape the sterility of orthodoxy, attention must be directed to factors which are responsible for the disease pattern in the modern world, because only thus will it be possible to develop control methods tailor-made for the prevailing conditions.

Because of professional socialization, the emphasis has been on factors which influence the interplay between microbial agents and experimental systems (both *in vitro* and *in vivo*). Technical limitations need not confine conceptional views.

Traditionally, dentistry and medicine have been concerned mainly with pathologic conditions in which the response of the patient's organism was defective and, therefore, became manifested in disease. This traditional attitude must now be supplemented by a more positive approach to the problem of general health.

In order to meet their professional responsibilities, dentists and physicians must add to their preoccupation with disease the study of the responses of normal man to his rapidly changing environment. Both health professions must supplement the knowledge of pathology with a new science which may be termed "biologic technol-

ogy." This is the conviction which has led the author, a bacteriologist, to focus his thoughts increasingly on the factors, external and internal, which condition the response of man to those microbes which are a ubiquitous part of his environment.

Rockefeller Institute, New York 21, N.Y.

Advertising standards

John J. Hollister. *J.Am.Col.Den.*
27:184-187 Sept. 1960

Every dental magazine should have a clear, concise set of standards governing advertising. Such standards protect the public health and the welfare of the dental profession, and provide a tool with which the editor or advertising manager can evaluate the eligibility of products for advertising and the acceptability of advertising copy.

It would seem axiomatic that no professional publication should carry advertising for a product which is actually or potentially injurious to a patient, or worthless; yet many professional journals do, because of a lack of means to determine whether a given product meets professional standards.

To take a hypothetical case, a dental journal receives an order from an advertising agency for a full page advertisement of a pharmaceutical product recommended for use in the treatment of periodontal disease. The editor or advertising manager is pleased with the order, the advertising copy seems innocuous, and the advertisement is run. What the advertising manager did not know was that the product had been placed in Class D by the Council on Dental Therapeutics of the American Dental Association. Class D products are those "which are unacceptable because of their demonstrated inability to meet the standards outlined in the provisions for acceptance." Had the journal's advertising been governed by a written set of standards requiring preferential classification by the Council on Dental Therapeutics, the advertisement would have been declined, and the readers and their patients would have been better served.

A good set of advertising standards will do for the advertising manager of a professional journal what a set of basic requirements for credit will do

for a credit manager. It will enable him to make sound decisions on acceptance of advertising.

The interested dental editor or advertising manager should know that the American Association of Dental Editors has adopted a code entitled *The Principles of the Advertising Code* which it recommends as a "basis for all dental publications." This helpful statement of principles asserts in its preamble:

"No dental journal should accept the advertising of unworthy or undesirable products, the use of which might endanger the comfort, appearance or health of the final consumers."

"No dental journal should accept the advertising of products, the claims for which are therein extravagantly represented, or that are presented without proper regard for the spirit or traditions of a scientific profession, or that are dishonestly or fraudulently marketed."

The American Dental Association has had in effect since 1953 a set of *Advertising and Exhibit Standards* which constitutes a practical, equitable guide in the acceptance of advertising for its publications. Many dental societies have adopted the American Dental Association standards to their own needs and have found them to be practical and fair. Dental societies which have not yet formally adopted advertising standards will find the statements of the American Association of Dental Editors and the American Dental Association useful in their own quest for a practical policy in this important area of association activity.

222 East Superior Street, Chicago 11, Ill.

How does the patient treat his dentist?

E. S. Priester. *Zahnärztl.Mitt.*
48/50:674-676 Aug. 1, 1960

Many articles have appeared in dental literature dealing with how the dentist should treat his patient, therapeutically, technically and psychologically. None, however, deals with the other side of the problem, that is how the patient treats his dentist.

One of the worst difficulties the dentist encounters in his practice is the unwillingness of patients to keep their appointments. Usually, the patient visits the dental office only when pain

has become unbearable, that is, far too late to prevent the development of dental or oral diseases and also too late to check the condition in its early stage. Fear of dental procedures is one of the most common symptoms of our time. This phobia is aggravated by films, radio, television and the comic strips; all depict the dentist as a sadist.

The worst offenders in dental practice are the children, especially if they visit the office accompanied by their mothers.

Adult patients play one dentist against the other: "My previous dentist did not cause the slightest pain," or "Dr. so-and so never sent me a bill and was, at any rate, far less expensive." The previous dentist always is pictured as a superman with whom the present dentist cannot be compared.

Every dental practitioner knows the many excuses his patients have in stock to defend non-payment of the dental fees. The two most frequently used are: (1) "I never gave my child permission to visit your office; you should have contacted me before performing any dental procedure," and (2) "The new dentures do not function properly; I won't pay before the discomfort they cause has subsided completely." It seems to be a curious fact that dentures for which the patient already has paid fit so much better than those which remained unpaid. Most patients seem to regard the dentist as a kind of loan company, and his bills, statements and reminders as unjust demands of a usurer.

Edward Samson, an English dentist and humorist, has classified the patients who treat their dentist poorly as follows:

1. *Dentoesthetists*, those who expect the dentist to make them look like film stars.
2. *Autodeceptionists*, those who maintain that any major surgical intervention causes less pain than tooth extraction or cavity preparation.

3. *Aquaphiliacs*, those who seem to suffer from an imaginary hydropsy and who, therefore, want to rinse their mouths several times before, during and after each procedure.

4. *Dentocomedians*, those who want to hide their anxiety behind an exaggerated cheerfulness, and who like to tell off-color jokes.

5. *Dentoscientists*, those who know dentistry much better than the dentist.

6. *Linguatortionists*, those who have an extremely movable tongue with which they discover imaginary defects in the most inaccessible spots of an inserted restoration.

7. *Linguaobstructionists*, those who have such a broad tongue that the entire operative field is covered and hidden.

8. *Hypersensitivists*, those who have the deluded belief that they are allergic to everything.

9. *Evasivists* or *Escapists*, those who always prefer another diagnosis or another treatment.

10. *Salivatorists*, those who have an excessive discharge of saliva (imaginary ptalism) at the dental office, thereby rendering any kind of treatment difficult.

11. *Pseudotrepidantists*, those who have an extreme need for protection; they regard the dentist as a monster.

12. *Energy boosters*, those who are able to break their dentures by eating soft food. They claim that a natural or an artificial tooth (or filling) was lost by eating ice cream.

I have examined and treated those and many other types of patients. However, I was informed that there are patients who treat their dentists well. Who are they, and where are they?

15 Harro's Court, 55 De Villiers Street, Johannesburg, South Africa

New equipment

The information reported here is obtained from manufacturers. Dental Abstracts does not assume responsibility for the accuracy of the information. The interested reader may direct his inquiry to the manufacturer.

The "Coe-bilt" bench light for dental laboratories provides concentrated light where desired. The No. 1 light rotates on its axis, and adjusts to right or left, up or down. It has a plastic handle for positioning, and a ventilated louver shade. *Coe Laboratories, Inc., 6033 S. Wentworth Ave., Chicago 21, Ill.*

A new, "Light Characterized" shade of "Duraflow" denture resin is a translucent, light reddish pink with variegated fibers and pigments. *Product Research Laboratories, Inc., 90 Hamilton St., Cambridge, Mass.*

A new "Linex" disposable waste basket liner is made of high-density resins said to provide a strength triple that of ordinary plastic or paper. The liner has a twistie. The waterproof liner will not rip or tear, will not create crackling sounds, seals off airborne contamination, and can be disposed of without moving the waste receiver. *IPCO Hospital Supply Corp., 161 Sixth Ave., New York, N.Y.*



"Betadine" swab aids are disposable antiseptic applicators for minor wounds, burns and infections. The aids are wrapped in individual cellophane tear-off envelopes, 100 to a strip, packed in a wall-mounted dispenser box. *Tauby-Nason Co., 350 Fifth Ave., New York 1, N.Y.*

Padded sheets of "Patapar" disposable vegetable parchment can be used by dentists as a mixing slab in preparing filling materials, impression pastes and other ingredients, it is claimed. Patapar "Easy-Strip" and regular vegetable parchment is impervious to water, tasteless, grease-proof, odorless and nontoxic. Vegetable parchment pads, bound on three sides, are available in sizes 4 by 5 inches, and 5 by 8 inches. *Paterson Parchment Paper Co., Bristol, Pa.*

Thirty-six different shades, shapes and sizes of crown forms can be made in minutes in any dental office with a "Crownomatic" set, it is claimed. The set consists of matched materials, including flexible crown form powder and liquid, hard jacket crown powder with liquid, master molds and other accessories. With the set, jacket crowns in 252 different shades, shapes and sizes can be made, according to the manufacturer. *William Getz Corp., 7512 S. Greenwood Ave., Chicago 19, Ill.*

Doctoral and Masters'
dissertations

In this column each month are listed recent Doctoral and Masters' dissertations of dental interest, accepted by the dental schools or graduate schools in partial fulfillment for advanced degrees. Copies of many of these theses are available from the schools through interlibrary loan.

Normal development and congenital anomalies of the middle third of the face. *Thomas Joseph King.* 1960. M.S.D. *Baylor University.*

Influence of trypsin on the rate of healing in fractured bones of rabbits. *Henry Leon Zak.* 1960. M.S.D. *Baylor University.*

The effects of acute and chronic vitamin A deficiency on the oral mucosa of albino mice. *Maria Nannini.* 1961. M.S. *Baylor University.*

The oxytalan fiber in the periodontal ligament of the rat incisor. *Myron Asbell Lieberman.* 1960. M.S. *University of Illinois.*

Relation between direction and rate of growth and success of orthodontic management. *Keki Minocher Mistry.* 1960. M.S. *University of Illinois.*

Alkaline phosphatase and lactic dehydrogenase activity in hamster tooth buds. *Klaus Nuki.* 1960. M.S. *University of Illinois.*

Quantitative electromyographic analysis of the masseter muscle during mastication. *Martin George Pesek.* 1960. M.S. *University of Illinois.*

Comparison of the effect of sero-calcium, Caragenol and oxyphosphate of zinc cement on the exposed pulp. *Kamal Dev Thanik.* 1961. M.S.D. *Indiana University.*

Clinical evaluation of "Gum-Ox" as a plaque and calculus preventive. *Tore Ørnulf Kristoffersen.* 1960. M.S. *University of Michigan.*

The effects of adrenocorticotrophic hormone on extraction wound healing. *Charles Augustus Clark.* 1960. M.S. *University of Pittsburgh.*

A study of orthodontic type tooth movement in normal, hypothyroid and hyperthyroid rats. *Armand Gabriel Dalmass.* 1960. M.S. *University of Pittsburgh.*

An evaluation of the stereographic and mathematical angulation radiographic technique for locating impacted maxillary canine teeth. *Robert Francis Easly.* 1960. M.S. *University of Pittsburgh.*

Anorganic bone—an evaluation of host acceptance in extraction sockets of man. *Moses Jacob Finder.* 1960. M.S. *University of Pittsburgh.*

An investigation of the interrelationships among the variables, height, weight, chronological, dental, and skeletal ages. *Larry Joy Green.* 1960. M.S. *University of Pittsburgh.*

A study of tooth migration in normal, hypothyroid, and hyperthyroid rats. *Alfred Leonard Shaw.* 1960. M.S. *University of Pittsburgh.*

The angle of the face: its orthodontic determination and importance (Der Fazialwinkel: seine kieferorthopädische Feststellung und Bedeutung). *Erika Steinkraus.* 1960. DR.MED.DENT. *University of Hamburg, Germany.*

Statistical report on the species of microorganisms causing dental suppuration (Statistischer Beitrag über die Art der Infektionserreger bei odontogenen Eiterungen). *Ludwig Spiegel.* 1960. DR.MED.DENT. *University of Heidelberg, Germany.*

Histologic examinations of the gingival margin, especially of its epithelium (Histologische Untersuchungen des Gingivalrandes mit besonderer Berücksichtigung des Epithels). *Schr. Stüer.* 1959. DR.MED.DENT. *University of Münster, Germany.*

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